

PROCEEDINGS
OF THE
FOURTEENTH NATIONAL CONFERENCE
ON CITY PLANNING

SPRINGFIELD, MASSACHUSETTS

JUNE 5-7, 1922



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PARKS AND PLAYGROUNDS

Their Requirements and Distribution as Elements in the City Plan

HENRY V. HUBBARD

Professor of Landscape Architecture, Harvard University

OUTLINE

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Introduction

When Mr. Shurtleff first told me that I must write this paper I protested that I knew nothing specific on the subject and that I suspected that nobody else did either. He replied that in that case it was time that somebody found out, and that if I would go so far now as to discover what it was that we were ignorant of he would set some of us to exploring the unknown regions in later reports. This paper, then, where it is not a statement of the obvious, is a detailed confession of ignorance. But in order finally to get some light on the subject I shall state my ignorant opinions definitely, hoping that they will sufficiently annoy some of the members to make them tell us later what the truth really is.

Like almost any other subject, in City Planning, if you begin to philosophize about it you find yourself writing a disquisition on the whole of civilization. I don't mean to do that, but plainly we can't avoid considering first what and why parks and playgrounds are, if we are trying to find out how and where they fit in the modern city plan. And we should remind ourselves that while we are talking throughout of recreation areas in the city plan, we are thinking of the city plan not as a complete entity but as part of the regional plan; and that any scheme for a community's recreation should ideally be developed in the full light of such a regional plan.

We believe that it is the duty of every member of a community to give up doing certain things for himself, and to submit to regulation in many things because this is better for the community as a whole. The citizen of Springfield cannot shoot or fish or cut wood for himself wherever he pleases, nor can he build a structure or carry on a business except under community restrictions. On the other hand we believe that it is the duty of every community to provide for each of its members those

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things which, because of its very membership in the community, he cannot provide for himself or buy from someone else. Perhaps, of all the things which the average man cannot provide for himself when he is in a large community, the access to large unrestricted spaces and the opportunity for exercise in the open air, and rest away from the oppression of brick and mortar, are the most obvious and the most important.

The park and the playground came into being to meet these needs. They are therefore a legitimate and necessary public expense, and since they are the only things which can serve their own essential purpose they must not be devoted to other purposes or modified for other reasons however good in themselves, except so far as this is compatible with their primary use.

Private enterprise provides, and should provide, a considerable part of public outdoor recreation, but there remains an essential part which the community only can furnish. This is the only part which we are now directly considering.

WHAT IS RECREATION?

We are endeavoring to determine what service it is that parks and other public outdoor recreation facilities should render as a functional and interlocking part of the whole physical machinery of the city, and then we want to know what they shall be and where they shall be in order to render this service most effectively. We are all, to be sure, pretty well convinced theoretically of what recreation is and why it is essential. But when we try to determine specifically what things are recreational, we come against a double difficulty. In the first place, as we know, recreation always consists in doing something that you don't have to do, and usually it means doing something different from what you ordinarily do. Therefore recreation

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is different for each man, and as various as human minds and human occupations are various. The second difficulty is that people are very imitative in their choice of recreation, and if a certain thing comes to be known as a recreation it will be so accepted, even though a great many people have to learn to like it. You cannot therefore conclude that those recreations which you find being carried on are the only or the best recreations; still less that they completely fulfill the recreational needs of the community, even though the community does not apparently desire anything further. In other words, we can not come to an answer by any mechanical comparison of statistics nor can we come to an answer by any arbitrary carrying out of a philosophical conception. What we must do is to learn and to record, in such a way that we all can use them, the essential things about the character and the working of the recreation facilities of our cities, gradually building up a body of common experience and mutual criticism. Then as each community makes its own experiments under the pressure of its own local needs but in the light of this general knowledge, we can gradually approximate to a better state by a means of trial and error.

We said that recreation is doing something which you are not obliged to do, and that people will accept as recreation what is to be had and what the crowd regards as recreation. These are two of the great reasons for public control of almost all public recreations. People having been restrained and regulated at their work find it part of their good time to cast off restraint in their play,—even the restraint of common sense. And they will often accept as recreation almost anything, good or bad, which is offered to them under that name.

It is emphatically the duty of the community, then, within reason, to decide what kinds of things people ought to have for recreation, and to provide opportunities for those things, discouraging others. But within these limits the

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individual should be as little restricted in his amusement as possible.

Considering recreation first in a wholesale way, we find that there are two kinds;—active recreation, or physical exercise, and passive or contemplative recreation.

For active recreation we actually find in parks or playgrounds provisions for such various things as walking, horseback riding, rowing, swimming, sailing, football, baseball, golf, tennis, bowling, track and field games, all the outdoor gymnasium activities, basket ball, and so on.

For passive recreation we find the enjoyment of the beauty of natural objects, from the sight of a flower to the view from a mountain; the enjoyment of outdoor man-made beauty in formal gardening, monumental squares, and such things; the enjoyment of getting together in crowds; the enjoyment of spectacles, pageants, zoos; the enjoyment of music and speaking; the enjoyment of motion, as riding in automobiles, and merry-go-rounds. And there are very many other recreations of both sorts.

Now it is plain that all these things cannot go on in the same place at the same time. If enough of these are to be sufficiently provided by the public parks and playgrounds, then decisions must be made as to what is to be provided and where it is to be provided, and the whole outdoor recreation system thus determined must be related physically and functionally to all the rest of the facilities of the city, however owned and operated.

TYPES OF PUBLIC OUTDOOR RECREATION AREAS

Let us see what light may be thrown on this question by considering what differentiations according to function have already taken place, or have been shown to be desirable by the very lacks of our present arrangements.

In a report which I read before the Conference in 1914, I suggested a general classification which seemed to me sensible and obvious, and as far as I know no one has suggested anything especially different since.—This was:

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(1) The "Reservation," a municipal holding of country land, perhaps in connection with city forests or city water supply, made accessible by roads, it may be, but not yet developed for intensive recreational use, and frequented mostly by picnic parties and others spending several hours at a time in the open.

(2) The large park, or "country park," designed to give, as far as is consistent with fairly intensive use, all the sense of freedom that the unspoiled country gives, and being the nearest thing to unspoiled country that most of the city dwellers can commonly take time to enjoy. It is fitted to receive large crowds and not to be destroyed by them, and indeed not to be crowded by them, for its main use is still to relieve a man from too close contact with his fellows.

(3) The small park, or "intown park," more accessible but less extensive, not pretending to a countrified appearance, but depending upon its design, its foliage and flowers, even upon architectural accessories at times; providing amusements which can be enjoyed by crowds and making the crowd a part of its design. "Commons," "public gardens," many of our larger so-called "squares," are of this type. Our "parkways," which serve as pleasure traffic connections for our large parks, have a local use in some cases like small parks.

(4) The playfield, for the active play of adults and young people over twelve, in games taking considerable space, like baseball, football, tennis, track athletics, etc., under supervision.

(5) The boys' outdoor gymnasium, or restricted playfield, for very intensive use by boys over twelve, with apparatus, such as parallel bars, ladders, etc., and a supervisor.

(6) The girl's outdoor gymnasium, for intensive use by girls over twelve, with giant strides, swings, etc., and a supervisor.

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(7) The children's playground, for boys and girls under twelve, with sand pits, baby hammocks, etc., and a woman teacher in charge.

(8) Special facilities depending upon local opportunities, such as swimming pools, wading pools, skating ponds, facilities for bathing in lake, river or ocean.

To this might be added, as an important variant of item 3, the suburban "neighborhood" park not serving the general public, but tending mainly to benefit the surrounding property; and as a variant of items 5 and 6, the small game area without apparatus.

SIZE AND SHAPE OF RECREATION AREAS

Let us first consider the requirements of these areas each for its own function, postponing the discussion of its relation to the whole city except as this comes up incidentally. The littlest children's playground might be differentiated from the playground for children up to 12. It was not differentiated in the list, for almost always they go together, for practical reasons of supervision. For instance, the mother or elder sister is likely to have children of different ages in charge, and she must have them all in the same place. Still if the playground is in the interior of a block it might be devoted to very small children only, who could be easily taken to the playground from the surrounding homes, allowing the mother to go back to her work, secure at least that they could come to no great harm.

A little children's playground,—that is, for children under five or so,—can have almost any *shape* since the units of which it is made up—turf or other play space, sand boxes, etc.—are all small or indeterminate in shape. Of course it is better if about square. Its *size* should hardly, at a minimum, be less than 2,000 sq. ft. in any case. It should give about 16 to 20 sq. ft. for every little child actually present. Its maximum size would thus be fixed by the maximum predictable number of users at any one time, as in the case of every kind of park and playground.

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Reckoning $\frac{1}{4}$ mile "effective radius," and a contributing population of 200 people per acre, $\frac{1}{2}$ of which was children under 5 and $\frac{1}{4}$ of these present at one time, a possible size would be 11,000 sq. ft. or $\frac{1}{4}$ acre.

A playground for children under twelve is not fixed as to *shape*, for apparatus, wading pool, etc., can be variously arranged, but again a shape not too narrow is best, on account of the running games. Volley ball should have 30 ft. x 60 ft. maximum dimensions; basket ball, 100 ft. x 60 ft. (standard). As to *size*, less than 3,000 sq. ft. would be almost a minimum. There should be about 140 sq. ft. of space for every child actually present. Again reckoning $\frac{1}{4}$ mile effective radius, a population of 200 people per acre, $\frac{1}{5}$ of which was children under 12, $\frac{1}{3}$ of whom might be on the playground at the same time, the maximum size of the playground would work out to be about 7 acres. Naturally, if the numbers seeking the playground were to be such as to warrant so great an area, we should expect to find this area divided into two or three smaller playgrounds scattered through the region served.

The girls' outdoor gymnasium and the boys' outdoor gymnasium can be fitted into almost any *shape*, as far as the apparatus goes. On the apparatus alone, counting space for those resting and waiting, and proper clearance to avoid danger, 20,000 sq. ft.,—less than $\frac{1}{2}$ acre,—is usable, though more is better. This would be a *minimum size* for 200 children. An ideal out-of-door gymnasium for 500 to 600 children would contain 70,000 sq. ft.,—a little over $1\frac{1}{2}$ acres.

It is natural that the figures given by most of those interested in playground density should be in the terms of square feet of playground per unit of child population within reach of the playground, or within a definite distance of the playground. These figures are the most easily obtained. But what we really want to know is the space needed for each child actually present at one time. Then,

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and not till then, can we make allowance for such factors as the employment and customs of the population, the efficiency of the leadership of the playground, the varying amount of vacant land or private yards used for play, etc., which greatly influence the proportion of the children within reach who actually come, and who come at the same time.

The playfield, for the active play of adults and young people over twelve, is somewhat determined in its minimum size and possible shape by the size and shape of the units which make it up. A baseball field should have 90 ft. from the back stop to home plate, according to professional rules, but a 30 ft. space here does not spoil the field. A good batter can bat a ball 300 ft. or more, but if there is a quarter-circle clear in front of the home plate with a radius of 235 ft. the game will not be hurt by the necessary ground rules, and even 190 ft. would not be very bad. A friendly game, of sorts, can be played on a field 200 ft. x 300 ft. Football takes 360 ft. x 160 ft. "Soccer" can well be played on an ordinary football field, but many a good game is played on a smaller area. Lawn bowls takes 120 ft. x 19 or 21 ft. for each rink. Tennis takes properly 60 ft. x 120 ft. for each double court,—minimum about 108 ft. x 48 ft.

A minimum size for a playfield might be set, for the sake of giving some figure, at 4 acres. If you allow 1 acre of playfield for each 10,000 of population, and give the playfield an effective radius of $\frac{1}{2}$ mile in a district of 100 people per acre, your playfield will be about 6 acres in area.

The small park or "intown park" takes so many forms that no general figures of dimension can have much meaning. It varies from the little "intown square," which can be only a local resting place for a few people, to the "public garden" which may be the Sunday promenade for all those who can afford Sunday clothes and for many who

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cannot. The Boston Public Garden is 24 acres in area. The Botanic Garden in Washington, similarly used, is about 12 acres. Central Park, New York, at first a country park, has now come actually to be a park of the "intown" class. Its area, 843 acres, still allows it to be treated in a naturalistic way; but without better upkeep than it now receives, it will soon go to pieces under its intensive use.

The large park, or country park, has a different kind of use. It should provide for many people, but, at least in parts of its extent, it should not be crowded by them. It may have areas where people congregate, but its essential parts are those where a person may get away from his kind and enjoy something of the freedom of natural landscape.

This means that the open areas of the park should be large enough to give some sense of extent, and self-contained, not intruded upon by the sight of buildings and other town-made structures. The open lawn in the Country Park at Franklin Park is 160 acres in extent, and is, besides, the foreground for a distant view. At Central Park the Green is 16 acres and the North Meadows 19 acres in extent.

Similarly a stretch of woodland in such a park should be large enough to accommodate all who use it without having each one intrude upon his neighbor, and the actual dimensions of such a woodland should seem to be large. This effect can of course be much increased by good design of paths and vistas. The "Wilderness" in Franklin Park is about 90 acres, Long Crouch Woods, 20 acres.

Some of the open areas of our landscape parks are coming in an increasing number of cases to be used for golf courses. The argument for this is that it offers to the players an excellent means of recreation, and the expenses of keeping up the greensward etc., may often be met out of the fees collected. Moreover it enlists a considerable portion of the community in the defense of the

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beauty of the park as a whole. On the other hand this use of the open areas precludes other uses, and often it may be doubted whether in the course of a day there is not more loss of recreation to those who might have idly and restfully wandered through these spaces than there is gain to the golfers. This whole question is an instance of an important consideration in park design. Often an area left open to a variety of uses, even if many of these uses are vague and unpredictable, is actually working harder than it would if fitted for, and therefore mostly restricted to, one definite use. However, there is no doubt that municipal golf should be provided somewhere,—either in the park or in an area by so much less desirable as a park. A standard 18 hole golf course is about 6,300 yards in total length of the holes from tee to green. It would occupy 100 to 120 acres. These figures could be much modified, but the 9-hole public course soon becomes too crowded, and a course with all short holes is no pleasure to anyone but the neophyte, and does not give even him much chance really to learn the game.

These factors affecting extent should always be taken into account, but the total size of the landscape park is more likely to be fixed by other considerations,—availability of land, relation to topography and so on. Fairmount Park, Philadelphia, containing 3,526 acres, is the largest single park owned by a city listed in the Park Statistics of U. S. cities collected by the U. S. Census Bureau in 1916. The next largest is Griffith Park, Los Angeles, 3,027 acres. Ten other cities reported single parks having an area of over 1,000 acres. Of the 19 cities having a population of 300,000 or more, only 7 reported their largest single park under 500 acres.

The "reservation" is the largest, the farthest outlying and the least developed of municipal pleasure grounds. It is bought while the land composing it is still farmland or woodland. It serves the hiker and the picnicker, and is the nearest approach to really wild landscape that many people

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often see. With the growth of the community it may later become park, but many of us hope that the typical community will not grow in that way. Often the outlying reservations to-day are not owned by the municipality but by the county or state. And the effective relation of these to the city-owned areas becomes a matter for regional planning.

We will not discuss here such special recreation places as bathing beaches, hilltops commanding views, etc. They are important when they occur, but they often occur in parks, and when alone, they are where they are found, and the park system adapts itself to them, not they to the park system.

There is a current belief that one-tenth of the city area should be in parks. The figures collected and compiled by the New York Bureau of Municipal Research during 1915 and 1916 show that the cities which are considered well-provided with parks actually have in the neighborhood of 10% of their area in park lands of various kinds; and that only 3 cities have park areas appreciably greater than 10%. For the cities which have approximately 10% of their area in park lands, the number of population per acre of park ranges from 81 for Hartford to 253 for Baltimore, the average being about 140 persons per acre of park.

We might bring out various other instructive points from these two sets of statistics of 1916, just referred to, remembering always, however, that without a firsthand knowledge of local conditions, there is always danger of foolish conclusions.

RELATION OF STREET SYSTEM AND RECREATION AREAS

On the relation of the smaller recreation units to the street system there is not much to be said which can be generally applied. The playground for little children up to 5 yrs. and the restricted playgrounds for boys and girls up

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to 12 yrs. do not require an area greater than one average block; and, therefore, even in ideal schemes, they would not usually call for any special arrangement of the street system as far as their size goes. As to their location, in disposing them conveniently in the various residential districts, and so as to require a minimum of crossing of dangerous traffic by those who come to them, they would normally be placed on the city plan in relation to a street and transportation system primarily determined by other considerations.

The little squares, breathing spaces, resting places, are likewise fitted into an existing street scheme. In fact, they usually arise through the utilization of odd corners produced by peculiarities in the street system.

The larger "intown" parks, public gardens, and so on, are in a different category. They should be conveniently approached by those seeking them for recreation—mostly pedestrians—and they should be, so to speak, conveniently avoided by the business and commercial wheeled traffic to which they are a detriment if it must go around them, and which is to them a very great detriment if it goes through them. Plainly, in the ideal case the solution is such a zoning plan for the whole community that it will be possible to put these "intown" parks in close relation to the densely populated residential district without thereby locating them athwart any important lines of business traffic.

The same general considerations in regard to their relation to the street system apply to the larger and more outlying parks, playfields, and reservations, but these recreation areas are so large that they can seldom be maintained intact and without being crossed by streets. If they are skillfully designed, their separate units can be efficient and their general effect of extent can be largely preserved, even though they are thus cut across by certain traffic lines.

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In the relation of pleasure traffic to parks the modern development of the automobile has made a notable difference since Central and Prospect and Franklin Parks were designed. Formerly when the old family horse and the carryall, or the livery stable horse and the rig with a seat for two, were taken out on Sunday afternoon, the out-of-town park was about the limit of the journey, and after a circuit of the park it was time to return. The parks were designed with this use in mind. The park roads were comparatively narrow and crooked, and they could run near to sequestered places without much disturbing them. Except on holidays, they could be crossed by foot passengers with little danger and little hurry and annoyance. They could lead to and past especially excellent views seen through narrow openings in screens of foliage, intimate and small scale views as well as distant prospects.

The automobile has changed all this. The park is now seldom the goal of an automobile journey. You are at the park almost as soon as you have started from home, and, were you to drive through it, the circuit of the park would require only a few minutes. But the whole open countryside is now within your reach. The present-day park should, therefore, be designed not primarily for the automobilist, but rather for the pedestrian who has no other resource, though the automobilist may well be allowed glimpses into the park as he rides by. If motor roads are allowed in the park, however, they should be designed for pleasurable motor traffic. Greater width and wider curves and the necessity for avoiding all blind corners make the automobile road, in its appearance and its use, destructive of natural beauty. The tooting of horns and the grinding of gears are also destructive of country quiet, through proper design of gradients and road intersections will minimize this nuisance. Before we put the auto road into the park, we should remember also that the smaller and more intimate scenes cannot be enjoyed from an auto-

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mobile. You are whisked by before you can grasp them. The more striking effects, the wider and more distant views, only remain really to be enjoyed, and they can be found often about as well in the open countryside as in the park. In the countryside the interesting views are more diluted, so to speak, that is, there are more uninteresting stretches between them, but this does not matter to the automobilist, while for the pedestrian the good views must be concentrated, as they can be in the park.

The automobile, then, should not carry people *through* the park, except where this is unavoidable or when it can be done, on account of the size or topography of the park, with little interference with its primary function.

The auto should carry people *by* the park—under the same restrictions—and this is possible and desirable.

It should carry people *to* the park, and, more especially and usually, to and through the outlying reservations, and proper provision of parking spaces where cars may be left while their owners enjoy the scenery on foot is a part of the design of all large modern parks.

The motor bus, huge and clumsy as it is, may be admitted on some automobile park roads, for it is often the only way by which some people, especially visiting organizations, can see the parks. But it should be restricted to certain roads only, and often may be allowed on certain days only.

Both for the auto and for the street car the parkway or boulevard is the designated and proper route from the heart of the business and residential districts to the parks and to the open countryside. And naturally the parks should lie on the boulevards—or the boulevards lead past the parks, whichever way you please to put it—on the way to the farther outlying open country.

RELATION OF PUBLIC TRANSPORTATION FACILITIES TO PARKS

The street car line is at the same time the friend and the enemy of the park. It is the cheapest and often the

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only reasonable means by which the great bulk of the city dwellers can reach the park. On the other hand, its noise and the sight of the rails and the cars are destructive, as far as their influence extends, of the very restfulness in the park which they have brought out the city dwellers to seek. This means of course that the street car lines must run *to* the parks for the sake of the parks, and that they must run *by* the parks, both for the sake of carrying people into the open country beyond and in their general function of linking up all parts of the city. But the car lines should not run *through* the park except where the separate park units can be so designed and the car line so secluded that the park is still capable of fulfilling the essential function for which it was set apart.

The railroad is on the whole the enemy and not the friend of the park in its immediate relations. There are plenty of instances of course, in the cases of the larger parks and particularly seashore or mountain reservations, where the majority of the people enjoying these recreation facilities come by railroad. But the railroad almost always exists primarily for other purposes, of state or nation-wide scope, and its location has to be determined primarily by these purposes and by topographic considerations. About all that can be said then in this regard is that the railroads can hardly be expected as a rule to modify their lines much for the sake of local parks, and that therefore the local parks must be placed and designed so as to get as much good and as little harm from the railroads as possible.

Transportation by water, however, is a friendly thing to parks in almost every way. The river or pond or the ocean is a pleasant and restful thing to look at, and the city which is blessed with the possibility of access to water will certainly go out of its way to locate parks upon it. Traffic over water is restful as well as interesting to watch from the park, and views across it give an effect of expanse, like views from hilltops, without the necessity of controlling a large area of land.

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Aerial transportation is likely in the future to bear a close relation to our parks. There is as yet no particular sign that heavy freight will be carried by airplane in the near future. This traffic will be to a great extent purely pleasure traffic and the rest of the swift traffic for business will have a large element of pleasure in it, particularly as we get used to this means of transportation and as the danger becomes less. The requirements of a large landing and starting field can only be economically met at some point at a considerable distance out from the center of the city. It might well be adjacent to a park or at least linked to other pleasure transportation and to the heart of the city by being situated on the parkway and boulevard system. It is not desirable to use a large open lawn in a park as a landing field if you expect it to retain its essential function as a part of a park. However interesting it may be to watch the arrival and departure of airplanes, it can hardly be considered restful, nor as yet even safe, and the necessary hangars and other provisions for the airplane traffic would be largely destructive of the effect of any naturalistic landscape unit.

RELATION OF SCHOOLS AND OTHER COMMUNITY BUILDINGS TO RECREATION AREAS

There has been from the beginning a very close relation between playground activities and school activities in the city. There is no clean-cut line to be drawn, at least in the case of children, between recreation and education, and facilities for the one often serve the other also. It is not the purpose of this paper to consider where authority should lie, or how coöperation may best be brought about, among the school committee, the park commission, and the playground administration, or whatever designations may be used for the managements of these three city functions. All I can say here is what we all know, that the playground should serve the children of the school at recess, that the school building can provide certain facilities

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for the playground, that considerations of relation to residential areas which motive the location of types of schools would motive the location of playgrounds of corresponding types, and that on this account also the school and the playground might well be contiguous.

Recently a more highly developed unit has proved its great worth in some cities, namely the community center, which includes both the school and playground and something else. Quoting from a publication of the People's Institute of New York, "A community center is any place where neighbors or people with common interest meet in order to be better neighbors and to make their common interest more effective. A community center is not primarily a building or set of activities, but rather an organizing center for the life of a neighborhood or a community."

For the meeting place of the voters' league, for public lectures, for the branch public library, public art exhibitions, musical entertainments, festivals—all these things—the location in relation to the community that they serve might well be the same as that of the school and of the playground. And the facilities of the school and the playground can be used more intensively by being put at the disposal of the community in these additional ways and thus through more hours of the day. The bearing of all this on our present subject is of course that in considering the location, size and shape of playgrounds, these coöperative uses, not all strictly recreational, must also be taken into account.

The location of the school and its playground near a large park is almost always a mistake, for two reasons. First, the school and playground are at their maximum efficiency when the whole area within their effective radius is residential. A school and playground placed next to any kind of large park plainly have their effective area diminished by about one-half. Second, the playground is a noisy place, and should be so all day, if working to its

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best advantage. And landscape parks are properly restful places, not helped by noisy neighbors. Some parks have parts which are not restful,—general assembly places, etc., and a playground next to such a place would do no great harm. But a playground is *not* a park, and no part of an existing park should be set aside for a playground—or *run as* a playground without any specific setting aside—without a fair facing of the fact that thereby the area and efficiency of the park as a park are by just so much diminished.

As to the placing of buildings like libraries, court houses, city halls, museums, and so on in public parks, to say nothing of less useful and less public buildings, the defender of park values often wishes that he could paraphrase the famous chapter on snakes in the history of Ireland, and say—there are *no* buildings in parks! I assume that I need not elaborate for this company the fact that a park is not a piece of waste land—a sort of municipal backyard which is improved by any reputable use made of it,—but on the contrary an essential part in the city's possessions designed for its definite purpose, and not to be intruded upon by facilities for other purposes, no matter how important these may be in themselves. When we say “parks” in this connection, we mean parks properly so-called. We are not protesting against monumental and architectural squares and plazas, nor do we object to the city hall standing in “city hall park,” if in reality the area is and should be merely an ample setting for a public building.

INTER-RELATION OF RECREATION UNITS

In a “park system” each of the different kinds of recreation ground has its own appearance as it has its own use. The playgrounds are designed primarily for their use, although they should have as much beauty as possible. They are small and often repeated, perhaps with little difference from one to another or even from those in one

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city to those in another. The "intown" park is almost always a constructed and man-made thing, being a part of the town. It is designed for its appearance and should have individuality in this appearance. If there is but one interior park, called perhaps the "public garden" or the "central park" of the town, it ought somehow to reflect the spirit of the town. Often the public buildings may face upon it, and it becomes the open element of the "civic center" —in the architectural sense.

The large landscape park should not look man-made, being a part of the country brought near to the town. Its spirit—what it has to give to the visitor—depends largely on the type of its scenery, and on the kind and condition of its foliage. A large park without foliage, or without natural landscape beauty, would not be, to our minds, a park at all. It is the enjoyment of this beauty which constitutes its primary use. A good park designer, then, would sensitively appreciate what the natural spirit and expression of an existing area is, or what it could be brought to or restored to if the city has already devastated it with dumps and fires. He would plan to make the most of that particular expression, so that the park should be a notable example of that kind of local scenery. But in another park he would hope for another kind of scenery, and he would approach his choice of available park sites,—hilltop, woodland, or waterside,—with that consideration in mind. Again he must fit either his scenery to the use of the park, or the use to the scenery. You cannot maintain a hemlock grove on a slope where there are constant crowds, while a maple grove on a flat might succeed under the same amount of trampling.

In the aggregate all the necessary uses must be provided for. It is not enough that a city has a large amount of land in parks. The parks must provide recreation for the active and the slow, the young and the old, men and women, the chattering family picnic and the ruminative

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solitary walker. But these uses, though all park uses, cannot all go on in the same park, or at least not in the same unified part of the park. And the pleasures of quietude and of the contemplation of natural scenery are the values which must be most carefully planned for and defended, for they are the most easily destroyed by the intrusion or proximity of other park uses. There is no gain in running automobile roads through the wild park to "open up" its beauties, nor in constructing a zoo or an amusement park near it "to bring people to the park" if thereby the very beauties are destroyed which it is sought to exploit. That is, just as you must segregate recreation from business and other such activities, that the recreation may be effective, so you must segregate some kinds of recreation from others, lest one make the other impossible.

In a general way the more "humanized" park uses are provided for in the most accessible places, usually nearer the heart of the town, and the parks become more natural as they lie farther out, until in the landscape reservation every man-made thing must prove its value before it is admitted at all.

A person going to a park wants to be relieved of the oppression of the city as soon as possible, and he wants to get home again without losing all the benefit of his outing by a long journey through the city which he went out to escape. This is the prime reason for the radial parkway or boulevard. A person riding for pleasure would much prefer to get from one pleasant park to another by a pleasant way, and if this way made a circuit of sufficient size his needs would be satisfied. This was the public desire that made the circumferential boulevard connecting the parks. And such a circuit offers its whole extent without repetition to anyone starting anywhere on its length. The boulevard also serves the pedestrian as a sort of local park of unlimited extent. It raises the value of abutting

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property, and, under proper restrictions, tends to direct and stabilize the residential growth of the city. Also, if well designed, it tends to segregate the swift pleasure traffic from the commercial traffic, to the good of both.

LOCATION OF RECREATION UNITS IN THE CITY PLAN— "RECREATIONAL ZONING"

Up to very recent times, the location of parks and playgrounds in our cities, and their size, shape, and character, have been largely matters of chance. The public generally had no clear idea of the function or of the importance of these things in themselves, much less any notion of their place in a complete city plan. Land has frequently been bought where it was cheapest, or taken where it was given, with little or no relation of one piece to another. The construction of a connecting boulevard, looking well on plan and pleasing the casual visitor, was sometimes publicly considered quite enough to turn these fortuitous units into a "park system."

Recently, however, we have more generally begun to think in terms of allotting the land of the community in each case to its most desirable use, of restricting some areas wholly or largely to industry and business, some to residence, some to recreation,—in other words, to use our accepted term (more useful than accurate), Zoning, to which we shall come again in a moment.

On account of their haphazard development, therefore, the present amount and kind of outdoor recreation facilities vary enormously between different cities. No general laws can be safely deduced, solely by general compilation of existing data, as to the relation of total park area to population, as to the proper distribution of parks or playgrounds, as to optimum size and shape of the various kinds of park, and so on. Such local information is valuable, but only when accompanied by a careful local interpretation and criticism in each case, as in the Cleveland Recreation Survey report of 1920.

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On the general theory of this "recreational zoning," we are probably all agreed. I shall state it more specifically than my facts warrant, both for brevity and in the hope of stirring some one up to correct me in detail.

Playgrounds for infants could theoretically be as close together as one in each block, at least in congested areas. This is practically difficult, and usually the littler children are brought to the playgrounds for the children up to 12, and should be there provided for.

Playgrounds for girls and boys up to 12 must be within $\frac{1}{4}$ mile of the children that they serve. Their size, determined by the number of children coming at one time from a tributary area of an average radius of $\frac{1}{4}$ mile and an average density of population, is not more than the area of one average block. They should, therefore, be located throughout the city on an average of $\frac{1}{2}$ mile apart, which can be done without disturbing the street system, care being taken of course that no area is cut off from access to a playground within its effective radius by a river, railroad, or unduly dangerous railroad or street crossing. There should be one such playground next to each school.

Separate playgrounds for boys over 12 and for girls over 12 may have an effective radius up to $\frac{1}{2}$ mile, but less is better; and where the schools for such children are less than a mile apart, these playgrounds should also be located one next to each school.

Playfields, serving mostly boys over 12 and young men, but also the more active people among all the older portion of the population, have each an effective radius of at least $\frac{1}{2}$ mile and so should be located at least one mile apart. Like all the playgrounds already mentioned, they should seek the densest residential areas, but they are more affected by the factor of land-cost than are the smaller units, and on account of their longer effective radius are somewhat freer to seek cheaper sites.

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The location of the "intown" park, a place for promenading and looking at flowers or architectural decorations, is likely to be determined largely by already established use and convenience of access from the intown residential and business districts. Usually, indeed, there is some square, public garden, or common which has long fulfilled this function in a more or less efficient way. Only a large city would have many such areas.

The landscape park and the reservation have an effective radius really co-extensive with the city, so that no "spacing" can be stated for them, although it is obvious that if they were equally spaced in their relation to the residential areas, and, (though not so important) in relation to the business areas, this would be an ideal arrangement, other things being equal. The fact is, however, that they are largely reached by trolley or by auto or even by train, and the availability of these means of transportation affects the desirability of the location. And since they are so large, the factor of cost and of topography enters still more considerably into the choice of their location,—topography especially, for the excellence of a landscape park is mostly the excellence of its scenery. Because of these considerations of local desirability a well-thought-out park scheme is very likely to be irregular and to have no decorative symmetry of plan.

There are railroads and heavy traffic roads radiating from the city which the parks should avoid, and along these there are manufacturing districts, also to be avoided. There are perhaps rivers and other water bodies which parks should seek. The landscape park areas should reach in toward the heart of the city, but they should not lie unnecessarily across main lines of travel. Thus there would naturally be produced not park and reservation girdles, but rather recreation wedges, connected circumferentially, if you will, by boulevards through the districts devoted to other uses, and connected radially by parkways

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to the heart of the city. Along these parkways would lie some of the smaller parks and playfields.

One great difficulty with which the park system designer must struggle is that he is not planning for the present but for the future. He must base his work on a prediction of how great the population is going to be, what it is going to want, where in the city it will be densest, what will be high-cost and what low-cost neighborhoods, which way business will move, and so on.

Here appears a great advantage of treating the park and boulevard design as a part of the general zoning and transportation scheme. Some stabilizing of the different uses, some steering of the growth, is thus possible. The park designer has in this way a recognized intention of the whole community and not merely his own prediction on which to base his allocation of the different recreation facilities. And his work in turn aids the realization of the zoning plan, for the more completely we can organize *all* the elements of the physical layout of our community with one scheme of development in mind, the more likely the community is to develop accordingly.

But with the determination of a park system, even with the fixing of a reservation system, the community has not discharged all its duty to its citizens as regards outdoor recreation. There may be a large by-product of recreational value to be got from public lands devoted primarily to other purposes. The use for park purposes of the specially protected and regulated lands draining into the reservoir of a water supply system is well illustrated in the Middlesex Fells near Boston and Mohansic Lake Reservation in the Croton watershed near New York. In many cases park uses may be permitted in municipal forests, as they are in our National Forests. In Massachusetts, for instance, Fitchburg, Walpole and Petersham have forests so used. Sometimes all these uses, park, forest, watershed protection, may be combined in one area. Much

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landscape beauty may be produced with no sacrifice of timber values. To put valley-loving trees and hill-loving trees where each is best suited is both good forestry and good landscape design. But some little concession by the forester to the recreation-seeker is often justified. To cut the timber in accordance with landscape units and with regard to views, to leave, for the esthetic effect entirely, certain wooded areas along rivers or roads or on points of lookout, brings more gain in beauty than loss in lumber.

The public-owned agricultural area, now beginning to be discussed, the so-called "productive park," can offer good recreational opportunities. There is even an optimist who would combine recreational facilities with the operation of a sewage disposal plant. The roadside improvement movement is another important application of the idea of producing recreational values by making public uses as beautiful as possible.

And provisions for public recreation might go even farther afield. In the present rapidly growing movement against the bill-board evil we see the beginning of a public feeling that the community has the right to regulate certain private property for the esthetic and so the recreational good of the public, as for instance in the case of the Mohawk Trail. It is not absurd to suppose that on some future better day, by preservation of bits of woodland, enframing of good views, sometimes by securing the admission of the public to certain private areas,—all of this naturally by private action under pressure of public opinion,—the country roadsides and agricultural areas generally may be made of much greater recreational value without losing, in total, anything of their economic value to their private holders. And so the public areas specifically set aside for recreation will be relieved of part of their burden.

So far we have been proceeding as if we thought that the city was to continue growing indefinitely by accretions

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about its own center, and that anything we could do to foster that growth and speed it by diminishing its disadvantages was a good thing. Personally I think that the curse of the big city is its bigness and the consequent impossibility of getting enough of all the things which a man lives by within reasonable reach of each man. I agree with the garden city advocates and call it good city planning so to zone a city and to regulate and add to its street system that eventually it will prove better for factories, and after them residences and stores, to start up in a new place, removed from the original city and separated from it by a considerable stretch of agricultural and forest land. In the ideal regional plan there should be not one overgrown city but a cluster of communities. I confess, however, that I am not clear in detail as to how this ideal result is to be brought about.

When you come to discuss how far apart these communities should be spaced in the state and in the nation, you are rather in the realm of roseate dreams, but surely there should be left enough agricultural land between them (or rather in total relation to their populations, for of course they cannot be equi-spaced) to supply their needs for such products as are best locally grown.

RELATION OF RECREATION AREAS TO LAND VALUES

In deciding whether a certain recreation area should be located in a particular spot and what should be the size and shape of the land which is to be set aside for this recreation purpose, we have to consider all these various factors which we have already discussed, which will tell us how available this piece of land will be for this specific recreation purpose. On the other hand, we have to consider the market value of this piece of land, that is to say, how useful this piece of land is for any and all other purposes.

Other things being equal, then, the recreation area seeks the cheapest land, and it is a fortunate thing in the case of parks that rough and broken topography, narrow river

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valleys and such kinds of ground are suited to parks but unsuited to ordinary residential or commercial development. Moreover a park may be beautified by keeping open a water course and so caring for flood water which might be a great obstacle to residential development. And similarly a place which could be reached with sewers only with great expense might not be the worse park for that reason, though impracticable for homes. In the case of playgrounds, however, no such fortunate combination of circumstances occurs. The playground belongs in the midst of a densely populated area, and land in a densely populated area is expensive. We are generally agreed that it is essential for the well-being of the community that there shall be one playground for every quarter-mile-radius circle which can be struck in the thickly settled area, although some considerable departure from regularity in the location of these playgrounds is reasonable and is indeed usually forced by other considerations. And when it has been determined that a certain location is on the whole the most efficient for a playground,—and the least efficient for other uses,—which can be found within the area which must be served by a playground, then at this point the other uses must yield to the playground, because the playground is essential and the other uses are not essential, or at least can be served nearly as well somewhere else. In other words, the city must pay whatever the land costs to produce a playground. And this reasoning has been accepted, as witness Seward Park in the City of New York, which cost the city between two and three millions of dollars, having an area of four small blocks.

The same general reasoning applies, of course, to parks, although in their locations there is usually a greater range of choice. They must exist somewhere, and when the best location has been found, then the park must be created, or at any rate the land acquired, even if the development of the land as a park must be postponed. There is of course a credit item in the city's accounts that may go far to off-

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set the price paid for the park. After the park is established, the land abutting upon it is increased in value, which value comes back to the city in increased taxes; and in addition to this localized increase in values on account of the visible and obvious advantages which accrue to the abutting property, there will also be a general rise of values because the park has raised the tone of the city as a whole. The local benefits are less noticeable in the case of playgrounds. Indeed in some of the more desirable residential areas the presence of the playground is considered to lower the value of the abutting property, as the exclusion of playgrounds by zoning ordinance from the most restricted residence districts in several cases would go to show. But wherever a playground is necessary, it can not be denied that its presence raises the value of the neighborhood as a whole. Moreover, in the case of a congested neighborhood the land value increase is both local and general, because however noisy the playground may be it is less bad than a street and more airy and open than the blocks of tenements which it has replaced.

It is not the business of this paper to discuss the financial, legal, and administrative aspects of recreation development. We might, however, remind ourselves here of the fact that these recreation areas are much more for the benefit of the future than for the present generation, and that therefore it is fair that a considerable portion of the cost should fall on the future citizens of a community. That is, it is fair that the cost of such development should be met by bonds which may run for a considerable term of years. For the same reasons it is desirable to buy, now while it is cheap, and before it is spoiled, land for the park use of future generations, and to charge it to the future generations by means of bonds. With a comprehensive city plan there is some assurance that these lands will be where they will be needed.

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NOTES ON DIAGRAM

To put all this in concrete form I have prepared a diagram showing the simpler theoretical relations of recreation areas in the city plan. Certain topographic features, and a considerable amount of previous unplanned growth of streets and railroads have been imagined, and the recreation development adapted to them to make the illustration more like a real case as well as to bring out additional points.

It is to be noted that the playgrounds avoid the commercial and industrial areas, but seek the most densely occupied residential areas. When possible the area tributary to each playground is not cut across by a heavy traffic street, a swift-moving pleasure vehicle street, or a commercial district, and almost certainly not by a railroad.

The circumferential boulevard crosses the river where it can, and is much distorted from its theoretical circle because it makes use of existing streets which can be widened and land which can be cheaply obtained. A connecting boulevard runs to each of the neighboring towns, by a pleasant route, preferably by or through an outlying reservation, but at any rate not too close to the connecting commercial traffic streets or railroads. Both pleasure and business traffic are brought to the heart of the city, but each mainly on its own appropriate streets.

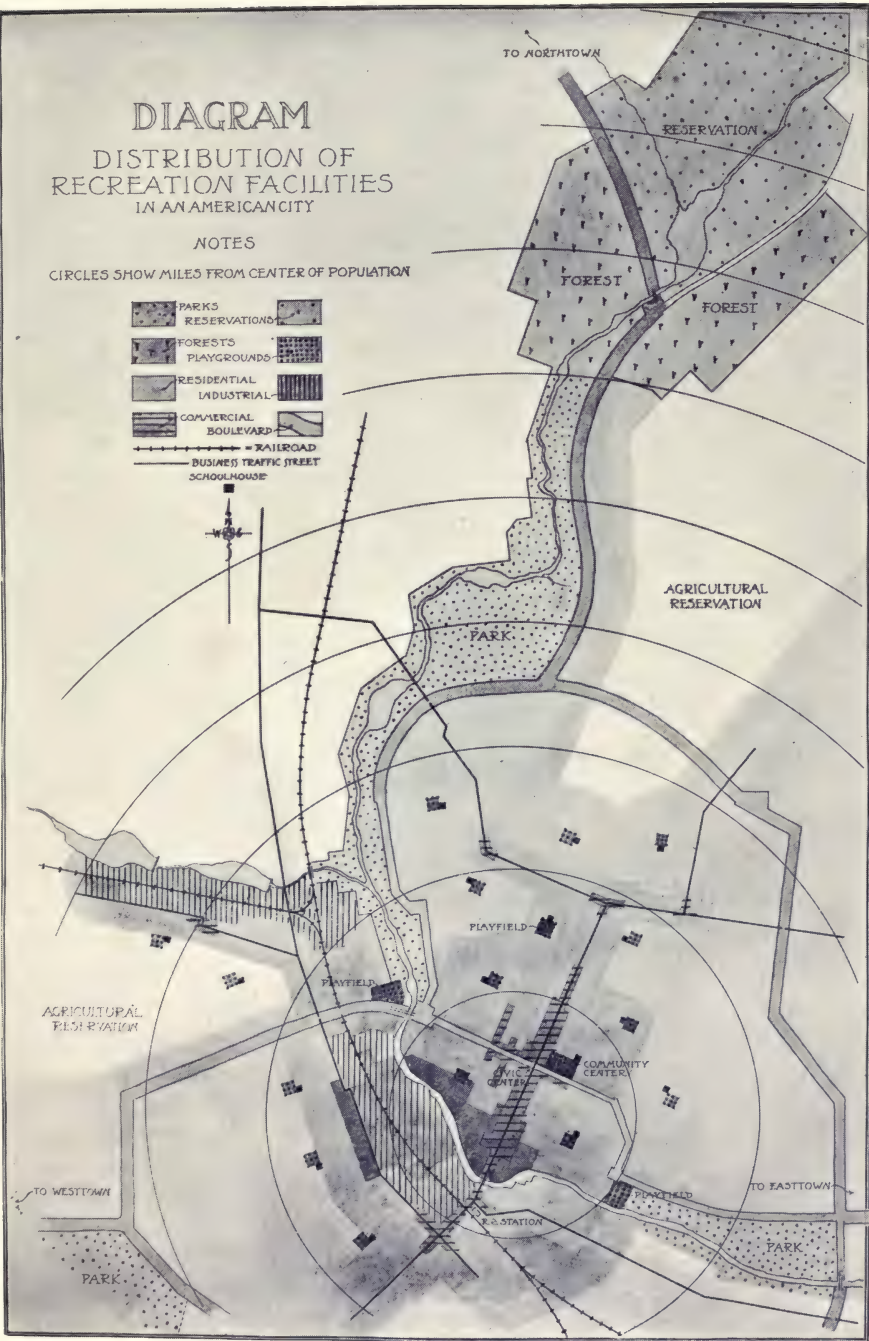
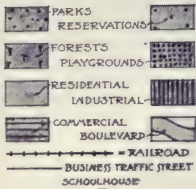
The town is shown in the diagram stretching into the country in three ways—(1) (to the west) low-cost residential areas following manufacturing along the stream furnishing water power and along the—perhaps later built—railroad. (2) (to the north-east) average residences crowding into the country by mere addition of one residential street after another. (3) (to the north) higher cost residences followed by apartments growing up along the boulevard and the park into the country.

It is suggested that it is an ideal to strive for to preserve

DIAGRAM
DISTRIBUTION OF
RECREATION FACILITIES
IN AN AMERICAN CITY

NOTES

CIRCLES SHOW MILES FROM CENTER OF POPULATION



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some such irregular star-shaped plan, keeping agricultural or forest wedges between the points of residential development. It would be an enormous saving of effort and of values created and capable of long duration, if,—by regional zoning or otherwise,—there should be some way of preventing or discouraging the piecemeal changes now so common in the use of a given piece of land, first for agriculture, then for residence, then for commerce, then for industry,—if this growth could be predicted, and permitted or made profitable only in areas where it had been allowed for. This probably would mean restricting the size of the town, and expecting that when it had reached a reasonable size and a balanced state of land uses, the next increase in commercial and industrial activity would take place elsewhere. And this would be on the whole a very good thing.

SUGGESTED PROCEDURE IN GETTING FURTHER DATA

Now I started by saying that this paper was partly a compilation of the obvious and partly a confession of ignorance. The obviousness has been obvious enough. The ignorance there may still be hope for.

As to the general theory of the design of playgrounds and especially parks as units in the city or the regional plan, this will depend partly on what we believe in as the end and aim of such a plan. As I have said, I believe that the ideal is not the forever expanding single city, but rather the neighborhood of towns, each one near enough to the outdoors to be a place fit for a whole and self-respecting man to live in. As to the particular classification of recreation areas which I used, that is for convenience only and could be changed, or the lines between the units shifted, without much affecting the general theory.

As to the detailed facts, we want more reports from those who know what activities are actually being carried on in

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parks,—what is popular, what is effective, what new requirements have arisen, like the change which the auto has brought. We also want knowledge as to the actual sizes which are required for the various activities of the playgrounds and the various recreational services of the parks, and how many people can be accommodated in these areas, and engaged in these activities, at one time. Then we want to know what kind of people,—age, sex, race,—enjoy these recreations, and also from how far these people come. I made a suggestion like this as to playgrounds back in 1914. The kind of information in the Cleveland Recreation Survey of 1920 is what we need. Such information can be secured, and must be, if we are to proceed otherwise than by each one of us modifying by guess for his new design some figures which someone else arrived at by guess for his design in another place. These figures cannot be got by the light of nature; they can be obtained only by taking counts and asking questions and spending money. They can be stated and interpreted for general use only by some one who knows the local circumstances, and who knows the general subject well enough so that he can watch for omissions and ambiguities and peculiarities of statement which would spoil any use of them elsewhere.

The Department of Recreation of the Sage Foundation, the Playground and Recreation Association of America, and a Committee of the American Association of Park Superintendents, now the American Institute of Park Executives, have been working along these lines. I suggest that whatever is undertaken by the American City Planning Institute be done in the closest possible coöperation with these other efficient and active organizations. They have been getting data from their own respective points of view, and there is no need for the City Planning Institute to duplicate their labors. We can use their data in developing the subject one step further,—not the size and location and administration of recreation units in themselves and

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in relation to each other, but in relation to all the elements which go to make up the complete city plan.

I suggest, then, that our Board of Governors make it the special business of a number of people to coöperate in this way and also to get some of these figures relating especially to parks, each man for some park or parks which he personally knows, in accordance with a unified scheme of statement, perhaps according to some such outline as I have used, perhaps according to some other. A year hence a committee, studying this information, might give us a real paper on the subject.

DISCUSSION

LEE F. HANMER

Director of the Department of Recreation, Russell Sage
Foundation, New York City

Professor Hubbard has given us such a comprehensive picture of the several types of parks and playgrounds that it remains only for me to comment briefly upon their size, location and uses, and to emphasize the desirability of city planners and recreation administrators getting together locally on all questions of park and playground expansion and development.

Providing places for play is not just "a sweet charity" which gives children passing pleasure, as some well intending individuals have seemed to think, but it is creating the tools with which to develop boys and girls into men and women who will play the game of citizenship according to the rules and who have the physical development that makes both for healthy bodies and healthy minds.

It is most reassuring to have a city planner approach this subject from the human view point as Mr. Hubbard has done. He recognizes the importance of locating play spaces where they can be used and of adapting

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the size and equipment to local needs. I find myself taking a bit of exception to what he said about encouraging the citizens to give up trying to do a lot of these things for themselves and leave it to the municipality to make these provisions for them. If he means to propose that we should give up trying to have our own backyards, neighborhood tennis clubs, community houses, and get together meetings with our friends, I would disagree very strongly. I assume that he does not mean this, but rather that the community should do for the individual only those things in the way of recreation which, because of local conditions, the individual is no longer able to do for himself, or to do by voluntary coöperation with his neighbors. We find our free time pleasures with our friends,—we do not seek our recreation with the crowd, except on very special occasions. One of our progressive middle-western cities opened a big municipal dance hall a few years ago. It was well patronized at first while the thing was a novelty but soon the attendance fell off and those who did come broke up into small groups or cliques because they preferred to take their recreation with their friends, not with the crowd. My children play with all the other children at school recess time, but they like best after school to get a group of their special friends and play in our back yard or some other children's back yard or in a vacant lot somewhere where they and their boon companions can be together. I find that they are not exceptional in this. It is the same urge that leads you to call up a friend in the afternoon and propose a round on the golf links after office hours, or to suggest to Tom that he and his wife call in for a quiet game in the evening, or to go to the theatre with you.

Recreation planners should take into consideration this persistent human tendency in establishing recreation facilities and encourage all the individual effort that is possible within reasonable limits in providing for our own

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small group recreations. This will need to be supplemented by municipal aid in supplying what the individual cannot or probably will not provide for himself. City planning can facilitate the practical application of individual initiative. Many school boards have found that the school house evening recreation center operated entirely by the director and his staff for the use of any who wish to come does not have the appeal to the people that the center does which is organized to facilitate the evening use of the school building by neighborhood groups that have developed along lines of friendship, congeniality, or common interest. Boys and girls and men and women like to have opportunity to choose their comrades in play as well as in work.

I am glad that we have come to consider the school playground an important factor in play planning. If the schools are properly located they are where they are easily accessible to the children. That is where the playgrounds should be. A small park with an up to date school building and its playground adjoining and a public library nearby makes an attractive and practical neighborhood center. The teaching of plays and games in the school provides the children with resources for their play time which they can use to advantage in their own back yards or in vacant lots as well as on the playground. One fourth of a mile as the practical drawing radius of a playground is quite generally accepted. The athletic field and larger play fields will readily draw from a much larger area. They can easily be as widely distributed as are the high schools. In fact every high school should have its athletic field and should have it as a part of the school plant. There is real economy as well as practical convenience in letting the school locker rooms, baths, and toilets serve those using the playground and the athletic field instead of duplicating these facilities in expensive field houses.

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Large play fields suitably located in the park areas are needed to supplement play spaces provided in connection with the schools. Here provision can be made for tennis, field hockey, bowling on the green, baseball, football, play festivals, etc. Suitable field house accommodations are necessary in this connection. These grounds should be operated by the park department, and have as many park features as possible retained in them. Shade and rest places are essential considerations in playground planning. The nooks for quiet games and story telling are appreciated as well as the areas for intensive and vigorous play. This does not mean that the park should be turned into a playground and its distinctive park features sacrificed and its aesthetic value destroyed. In our enthusiasm for doing away with the "keep off the grass" signs, I am sure that we have needlessly sacrificed many beautiful park spaces that were contributing to our happiness and well being quite as definitely as were the areas used for intensive play. The playground has a type of architecture of its own quite different from that of the park, and when properly applied makes the playground attractive as well as useful. It is unfortunate to attempt to merge the two to their mutual disadvantage.

May we add to Prof. Hubbard's types of play spaces the back yards, the interior courts of tenement blocks, and the roofs of apartment houses. City planners can do much to so influence housing developments as to make possible these play spaces easily accessible to the small children and near enough to their homes to make possible a considerable amount of parental supervision. The "regional plan" and "zoning" both contribute toward this end.

The question of how play spaces are to be administered is a factor to consider in determining their size and location. The number of children in a given area does not always indicate the number that will use the playground or the number that will be on the playground at any given

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time. I have seen well equipped playgrounds in crowded neighborhoods practically deserted when the streets and alleys were teeming with children. The trouble was solely the lack of competent play leadership. When the children were asked why they were not on the playground, the answer usually was "nothing doing there." In one instance the only game that was in operation and which seemed to attract any interest was a group of boys dodging the caretaker who with a cudgel in his hand was chasing them off the swings when they stood up by pairs to "pump" and thus scratched the swing boards with the nails of their shoes. If a city is not prepared to provide competent supervision and play leadership for its playgrounds, it is a waste of money to provide them. Better just have plenty of open spaces. School playgrounds can be economically and effectively operated by the school board, not only during school hours, but after school, on Saturdays, and during vacations. Therefore, it is thoroughly practical to plan for a playground in connection with every school. It should be of such size as to provide approximately twenty square feet for every child enrolled in the school. The capacity of the school building determines this. Rarely will all the children be on the playground at one time; if they were more space would be needed even for the intensive use for which such playgrounds are designed. This of course does not provide for such games as baseball, football, etc.

The outdoor gymnasium with swings, gymnasium frame, basketball courts, etc., requires from sixty to one hundred square feet per child—that is, for the maximum number using it at one time. If this playground is well conducted it is reasonable to expect about one-half of the children of the district that it is designed to serve to be using it at any normal period.

The large play field for athletics and team games requires about one acre for every one hundred persons

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using it at one time. These fields will easily draw from a radius of a mile or more. Its use depends to some extent upon transportation facilities, but more upon the community organization of activities. A school athletic league, an industrial athletic league, a twilight baseball league, a girls field hockey league, a soccer football league, etc., are all agencies that will promote the extensive use of this type of play area. It should be planned to serve adults as well as the older boys and girls.

The outlying park reservation for excursions and outings like the Palisades Interstate Park up the Hudson River from New York City is a comparatively new feature of recreation ground development, but one which offers great possibilities for practical usefulness. This is primarily a park, although in addition to its wide ranges and camping and boating features, it may well include certain small areas developed for more intensive use, such as ball fields and even children's play spaces. This type of recreation ground offers attractive possibilities for the large centers of population.

Seaside parks and parks on the shores of lakes and rivers with their bathing accommodations fall logically in the middle ground between the community play field and the outlying forest reservation in the development of the regional plan for recreation.

ARTHUR LELAND, *Newport, R. I.*

I want to congratulate Professor Hubbard on his very able and comprehensive paper. I think he has gathered together nearly all of the available knowledge on the subject into a masterpiece. My neighbor from New York, Mr. Hanmer, having had the first shot at it has taken a good deal of my "thunder." A curious coincidence is that my notes seem to follow his almost exactly.

The first, as to the question of the duty of the city to take care of all the recreation for the family. The family

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is pretty well shot to pieces in these days, with industry and education taken almost entirely away from the home into the school. Now we are in danger of taking all of the recreation away. I want to make a plea for the home back-yard playground. It is one of the most important things which we should develop.

We can plot our playgrounds for small children every quarter of a mile, but most of the mothers will not let them go there. Theoretically, she wants "little Johnnie" and "little Mary" playing around in sight, but not under foot. Actually, however, most mothers do not know much of the time where "little Johnnie" and "little Mary" are; though they should know, and for this reason there should be back-yard play grounds in the center of blocks either public or private wherever there are children, whether in the slums or in the best residential districts.

Another thing which disturbs me as a playground man is the dividing up of play which ought to be a family institution; the placing of a little childrens' public playground here, big childrens' playground half a mile away, some other kind of a playground somewhere else. This may have to be done but is bad for the family also. Wherever possible we should have all ages playing together somewhere near each other, so that family control and ties may be maintained and the family take its recreation together. In the old days our New England ancestors weren't as bad as the present Blue Law agitation would make them out to be, and New England consciences might have made them, had not conditions of pioneer life prevented. Next to God they worshipped work, but with thirteen or fourteen children to keep at work, Mother and Father had a life-sized job; father tilling the farm and mother tilling the house, with what assistance they could secure from the children. The youngsters had their duties and were not over-worked because it was more work to work them than their work was worth. The family was a machine not for efficient

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production but for education. A lot of compliments have been handed "The Little Red School House" by educators which belong to the home; both were educational institutions and "The Little Red School House" was also a community center where parents and children took their recreation together as they took their work together at home. Now they do not take anything together except the "flu." The child goes to school, comes home for meals, sometimes, whereupon he "beats it out" again seeking playmates. Mother and father and everybody are doing it. If you want to find the family under the same roof, come at five o'clock in the morning. Recreation can and should help to keep the family together. There is a wonderful little family recreation ground in St. Paul, Minn., Harriet Island, a little park dredged up in the middle of the Mississippi River. Here fathers and mothers and children all gather together for recreation. Of course, St. Paul being largely German in ancestry may account for this.

The idea of hunting around for cheap ground for recreation tracts does not appeal to me. Competition between public recreation and commercial recreation is so great that we must have recreation facilities within easy reach of the people or they will not use them; playgrounds and recreation parks especially must be where the residences are, since people and children live in residences; we want them living on all sides of the Recreation Park. The relation between the two seems obvious. The thicker the population the more expensive the land. We have a horrible example of mislocation in Newport where somebody had some land to sell. One playground was located at the extreme end of the city, part of the plot being in Middletown, a farming community; and one at the other end of the city down near the Ocean Drive where the millionaires live and there are no children. My predecessor, an incorrigible optimist; tried to operate these for playgrounds

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with disastrous results to the recreation system. When I came to the city I recommended that they be used for ball playing only and for pasturing cows; we got the grass cut that way.

Professor Hubbard sets the minimum size of a playground as four acres. We have one in Newport in an ideal location in the very heart of the city on a tract of land 2.4 acres owned by the New Haven Railroad, directly opposite from the station, where little children, middle size children, large children, boys and girls, young women, young men, and old men all assemble for recreation. The greatest length of the field is 250 ft.; it is only 210 ft. from home plate to the right field fence. If left field fence were as near, the playing area would be less than 1.2 acres. The extreme width of the field is 400 ft. Home plate is within 40 ft. of the street where automobiles are parked. The Railroad Station where passenger trains are made up is 90 ft. away where the rules call for the back stop, just the other side of this street with consequent congestion of traffic. Baseball playing is made possible here by a series of hood backstops and screens. Occasionally a high infield fly hits the hood. The players kick of course but the umpire settles it. That is what he is there for. We have bleachers with a seating capacity of 1,000 and an average attendance daily of 1,600, both of which we intend to increase. Besides the regulation diamond there is a $\frac{2}{3}$ size diamond. There is a combined foot-ball and soccer field with combination goals designed to save a great deal of space and trouble. There are swings, see-saws, giant strides, sand boxes, etc. for the children; a hand ball court, barn yard golf courses (horse shoe court) a lawn, hedges, shrubbery and trees.

It is easy enough to maintain a beautiful park where no one goes, but the job of preserving horticultural material on a playground where from one to two thousand people daily assemble is another and very different task. The

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children themselves are quite a problem. We had the children plant the hedge, shrubbery, and some of the trees. This was a foxy scheme, and so far nothing planted by the children has been seriously injured.

This is a real baseball field, one of the best; and no better games are played in this part of the country. There are eight teams in one League with over 200 players. The hat is passed; the average contribution per individual being $2\frac{1}{2}$ cents per game. From the proceeds all expenses of operating the games are paid and 10% of the cost of improving the grounds will be paid back this year. During the three years that this field has been used there has not been a serious accident from batted balls; nevertheless, we have a Public Liability Insurance Policy as a safeguard. We hope to add a tennis court and to give moving pictures here at night after it is too dark to play baseball. Thus you see careful planning can greatly increase the intensive recreation use of a small piece of ground. You can by supervision and organization make them come a long way to play; when I was in Louisville, there was a boy in one of the playgrounds who always traveled three miles each way to the playground, never missing a day; there was something going on and he didn't care to miss it.

I came to Springfield hoping to get a little information on a knotty problem. They make dictionaries here, Webster's I believe; so perhaps this is a good place to secure the answers to these questions: When is a Playground a Park and when is a Park a Playground? When is a Park not a park but a Playground?

If there is any lexicographer here, perhaps he can enlighten me. We have a so-called park in the city of Newport, which is one of the small squares of the city, and in furthering the developing and using it the Recreation Commission wishes to put some buildings there. The question arises: Is it a Park or a Playground? Professor Hubbard says, "practically speaking, there should never be

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any buildings on a park." So many playgrounds are situated in bare sunbaked school yards, vacant lots and other such ugly places that the public has come to think of a playground as an ugly thing and different from a park. On the one hand we have these playgrounds and on the other hand we have the beautiful playgrounds of the South Park System in Chicago, costing millions of dollars, with their beautiful community buildings and with all playground features, and also all of the features commonly found in parks. The transition from a sunbaked schoolyard to these beautiful Recreation Parks is a long step. I think we need a new term, Recreation Parks, and that the small interior squares of the city need to be treated as such. It is a fine thing to see the playground people getting together with the landscape architects and city planners to make beautiful places where the children can play, and show the public that a playground may be beautiful.

I am a poor speaker but a good question answerer, having had practical experience for 21 years with every operation connected with playgrounds from handling the tape and pencil in designing them to the shovel in making them and operating them effectively afterwards, and would be delighted to pass some of my experiences on to help someone else.

E. M. BASSETT, *New York City.*

I would like to take a hack at the question, "What is the difference between a park and a playground?" There is a difference between a city street and a site for a fire house or school house. The difference is that the street is taken for the people in trust for street purposes and the people own it in a sovereign capacity. Not so with a site for a fire house or a school. The city owns it as proprietor in just the same way that you or I might own a piece of land abutting on a street. Most well-regulated cities have an official city map. Streets and parks are shown on this

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official city map because they are the land of the people. Being public land and kept open for the transportation and recreation of the public, they constitute the official plan of the city. If a new street or new park is to be created, the first step should be to alter the official city map.

It will help us to answer the question if we go one step further and try to determine what the difference is between a street and a park. The main difference is that a person owning private land abutting on a street has an easement of light, air and access over the street. But an owner of private land abutting on a park does not have an easement of light, air and access over the park. The city controlling the park could put up a retaining wall or a fence at the park line. Of course, all the people are supposed to have access to the park, but this access is given usually at street entrances to the park.

Now we come to the difference between a park and playground. A park is properly shown as part of the official city map. The people own it in a sovereign capacity. No buildings can be constructed on it unless they are for park purposes such as rest pavilions, bandstands, skating huts, etc. Buildings for other purposes can be prevented by court action. A playground around a school, however, is not a park. It is not shown on the city map. It is not owned by the people in a sovereign capacity. On the other hand it is owned by the city as proprietor.

A playground separate from a school may be a school site or a site for some other future public building. Sometimes land owned by the city not otherwise used is temporarily devoted to playgrounds. If, however, the city map is altered to show a park which is to be used as a playground, then it is contemplated that the playground will be a permanent institution and the land cannot be built upon at a later time.

To sum up, a playground may be either on a site for public buildings or it may be on a park. In the former

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case it should be considered temporary. In the latter case it is permanent. If a city intends that a playground should be permanent, the first step in obtaining it should be to alter the official city map and then acquire it as a park.

G. H. GRAY, *New Haven, Conn.*

The speakers all favored the idea of an interior playground within the block. Is there any serious objection in having this or maintaining it?

MR. LELAND.

There is always serious objection. There are people within the block who will object. The only way out is to put it in a block entirely bounded by streets.

THE SCHOOL BUILDING PROGRAM AN IMPORTANT PART OF THE CITY PLAN

DR. GEORGE D. STRAYER

Professor of Educational Administration, Teachers College,
Columbia University

One-sixth of the total population of American cities is enrolled in the public schools. From eight to ten months of each year these boys and girls spend by far the most important part of their waking hours in school buildings or on school grounds. The careful planning of school sites and school buildings must affect in large degree the welfare of the boys and girls now in school and through them the future development of the city. It is to be regretted that careful planning for the development of school building programs has been neglected in most American cities. That the matter has come to be considered important is indicated by the increasing number of studies being made in this field.

In the discussions which follow, the writer will refer to his experience in the development of school building programs for the cities of St. Paul, Omaha, Baltimore, and Atlanta.*

These studies have been made in each case at the request of the board of education. In the city of Baltimore the program was developed in cooperation with a municipal and school administration which included the school building program as a part of the general development of the city plan. It is only when such complete cooperation is offered that the school building program can be most adequately developed. The absence of a general city

*Volume I, Baltimore Survey, 1920-21, "The School Plant and The School Building Program."

Volume I, Atlanta School Survey, 1922, "Survey of the Public School Buildings and the School Building Program."

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plan and of zoning must inevitably result in shifts in population and in the character of housing which are most important in determining the school building program and which it would be difficult or almost impossible to forecast.

In a large majority of American cities many old school buildings, in most cases insanitary and unsafe, are still in use. These buildings are quite commonly of non-fire proof construction, are poorly lighted, inadequately ventilated, without satisfactory sanitary arrangements, and are often located on sites so small as to make literally no provision for play or physical education. It is safe to estimate, on the basis of data collected for 429 cities, that one half of the children in American cities have provided for them a play area of less than 6 x 6 feet. In very many of these cases, as has already been suggested, there is literally no play space.

That our communities are awakened to the need of the schools for more adequate buildings and sites is indicated by the fact that \$240,000,000 worth of school bonds were issued in the year 1921. In the spending of this money some of our cities have sought to develop their school program in complete accord with the general city plan. In very many other cases the money has been spent without careful study of the needs of the community, and without any proper consideration of the development of the community. Other hundreds of millions of dollars must be spent in order to provide adequate housing for American school children. It is of the utmost importance that these funds be spent in such manner as to provide the largest possible return to the community over the period of the next two or three generations. We have no right to anticipate the scrapping of good buildings merely because of the failure to place them in relation to the future development of the city.

The general city plan, determining as it does the lay-out

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of streets, the lines of transportation, the development of parks and recreation areas, the zoning of industries, of business, and of various types of housing, provides certain limits within which the school building program must be developed. There are, however, other considerations that may not be overlooked.

Any attempt to develop a school building program must involve a careful survey of the school plant as it at present exists. The problem of the repair or reconstruction of buildings, or of their abandonment must be considered in the light of the total situation, and in terms of each detail entering into the fitness of each plant for the purpose for which it is being used. The possibility of increasing the size of the site without undue expenditure of money must be considered. In general, it may be proposed that buildings that are most inadequate be abandoned, while those that can be repaired and refitted so as to meet modern standards be put in good condition. Variations from this procedure will occur where a region is losing its population, or where old buildings are to be used temporarily while new schools are constructed.

In order to establish the inadequacy of old buildings that are still being used, it has been found necessary to make a careful study of each of the many elements which contribute to a standard school plant.*

The size of the site, the general character and condition of the structure, the service systems including lighting, heating, ventilating, water supply, sanitary arrangements, the construction and equipment of the classroom as a unit, and special facilities which are provided in terms of gymnasiums, auditoriums, lunchrooms, shops, and the like, must be studied in the light of accepted standards.

In our work during the past ten years we have not infrequently found buildings in use in which there was prac-

*Strayer-Engelhardt Score Card and Standards for City School Buildings, published by The Bureau of Publications, Teachers College, Columbia University, New York City.

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tically no fire protection in buildings of a most highly inflammable character. Catastrophes such as have been recorded in the past will occur again unless in the development of school building programs such structures be abandoned. In measuring the light delivered to the desks of children in many of these old buildings we have found as little as a fraction of one foot candle where the standard calls for six foot candles. We have found open burner gas jets or a single nitrogen bulb six feet from the floor installed as means of providing artificial light. We have found classrooms that were hermetically sealed in order to make it possible to have a fairly comfortable temperature in cold weather. We have discovered conditions that were unspeakable in toilet rooms used by children whose fathers and mothers are sending them to school in order that they may develop into men and women of high ideals. These deplorable conditions can in many instances be remedied only by scrapping the building. It will ordinarily require a careful survey and an unsparing criticism of these conditions to persuade the community of the necessity of furnishing the money necessary to buy new sites and to construct new buildings.

The school building program is dependent not merely upon a study of present population and shifts in population, but more especially upon a careful analysis of the school population itself. The number of children attending private and parochial schools, the persistence of children through the elementary and high school period in various parts of the city, the distribution of pupils by age and grade throughout the school system will shed much light upon the development of the program of facilities to be provided. We have found not infrequently that certain areas with equal population will furnish twice as many children per unit of population to the upper grades of the school system as will other areas in the same city.

In like manner, the type of school organization which

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the community seeks to develop must be considered. If a kindergarten and six-year elementary school is to form the first unit of the school organization followed by a three-year junior high school and a three-year senior high school, a special study of school population for these divisions of the school system must be made.

In general, the pupils of the elementary school should not be required to travel more than one-half mile. It is interesting in this connection to note that in one of the cities in which a careful school building study has been made, using one elementary school as a center of a radius of three-eighths of a mile, ten schools were included in the circle so drawn. There was obviously no planning at the time these schools were erected. Junior high school pupils may be expected to travel from one to two miles. Senior high schools should be located with reference to sites available, preferably, except in the very largest cities, in the outlying districts rather than in congested areas. The placing of the junior and senior high schools will be determined largely by the actual residence of those who are found in this part of the school system. This general area having been determined the factor of transportation facilities and of site free from expensive improvements will have to be considered.

As an example of the placing of a high school, the location of the new Northwestern High School in Baltimore may be cited. We found there that the Northwestern ward, the fifteenth, had a larger number of children attending high schools than any other section of the city. Two of the main lines of transportation cross in the Northwestern section and well beyond the closely built up area. In the angle of this intersection it was found possible to secure a site of twelve acres. This site was chosen and the building is now under construction. The great majority of those who will attend the school will be able to reach it in from fifteen to twenty-five minutes on electric cars.

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In similar fashion, in the city of Atlanta, it was found possible to secure a twenty acre site for a boys' high school in the outlying section of the city which can be reached by electric cars from all sections of the city within a reasonable length of time. The manifest advantage in finding a large site at a relatively low cost is no more important than is the fact that the "outer rim" high school makes it possible for children to travel to and from school against, instead of with, the heavy traffic morning and evening.

The size of the school site is a most important factor in the development of the plan. An elementary school cannot be satisfactorily organized with a single class to a grade. One of the most outstanding mistakes that has been made in our cities is the building of small elementary school structures, housing from eight to twelve classes. If promotions are to be made more than once a year, and if children are to be classified in terms of their ability to progress through the school course, a much larger unit is desirable. I question whether there should ever be an elementary school building of less than twenty-four classrooms except in the outlying and sparsely settled parts of cities. Even in these cases provision should be made when the building is constructed for additions which will make the larger unit possible if population increases. It is a well known fact that the over-head charges in terms of supervision and the maintenance cost, the cost of janitorial service and fuel are much greater per pupil in the smaller building than in the larger one.

Play space of at least one hundred square feet per pupil should be provided in connection with every elementary school building. With the larger elementary school building in mind, sites of five or six acres should be bought wherever the cost is not prohibitive. Where sites are bought in anticipation of the growth of the city even larger areas will prove advantageous. In the congested parts of cities large spaces in gymnasiums and out-of-door play

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space on decks or roofs of the building should be provided. Junior high schools with a necessary provision for the games requiring larger space should have correspondingly larger sites. Wherever open land is available and where it is possible to place these schools on the "outer rim" of the city, as in the case of the senior high schools, the sites should be from ten to fifteen acres in size. For the senior high school with the great diversity of play and athletics, which should be provided for both boys and girls, and separately for each sex, a site of from twenty to twenty-five acres should be secured.

These standards considered as a part of the general city plan are being met in the more progressive American communities. There are cases where even the somewhat generous sites suggested have been exceeded in recent city planning. It will always be unfortunate, if the board of education or other authority finds it necessary to buy sites much smaller than those proposed on account of the cost of the improvements found upon the land which should be taken.

A study of the density and changes in population over a period of years forms a necessary basis for providing for the need of school buildings in the future. Growth or loss in population by wards, by election districts, by census enumeration districts, and by police precincts have been found helpful. Maps showing density of population, density of school population, areas not available for residence purposes have been utilized to advantage. The studies by public service corporations, particularly by the American Telephone and Telegraph Company, have been found most helpful in checking against the studies of school population.

The planning for schools to meet the needs of the community involves a continuing study. However carefully one may assemble the necessary data, and however cautiously he may interpret them, there will always remain the

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possibility of error in any prediction which may be made due to factors which could not be considered at the time the plan was developed. A revival of business, the location of large industrial plants, the activity of real estate development companies are common examples of factors which require variation from plans which have been previously developed.

In any growing city of more than 100,000 population one or more competent persons should be responsible for the conduct of a continuing inquiry dealing with the development of the school building program. In the light of the evidence so collected boards of education, or other city authorities, should purchase sites in anticipation of the city's needs. I am confident that it is just as possible to anticipate these needs upon the part of the city as it is for a telephone company by the laying of conduits and the buying of sites for exchanges, to anticipate the needs of the community for the service which they have to offer.

Public schools are absorbing a larger percentage of the revenues available than does any other function of the modern American city government. This service in so far as it has to do with buildings and sites can be most adequately and most economically furnished, if the development of the school building program moves hand in hand with the development of the city plan.

DISCUSSION

C. B. J. SNYDER

Architect, Department of Education, New York City

Dr. Strayer's splendid address leads to the conclusion that there is reason for the breaking away by degrees from the government of other days based on the belief that "as our fathers did so will we do."

We reverence our fathers, their memories and their deeds, but we are now constrained that so far as school sites were concerned they did not do quite enough.

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Today we have reached the point where school building programs as covering several years future needs of a community are being considered or are actually being put under way. Let us hope that the time will have soon passed when progressive communities can be said, as now, to postpone the selection and acquisition of a school site until long after it is required and then to sin against this and future generations in not obtaining those of a size sufficient to provide not only playgrounds for the schools, but for the neighborhood as well. For it seems to me that the relations of school sites to the city plan and their reservation as such are next in importance to the street plan itself. And by a school site I mean not only the site for the school building itself but big enough for playground use for the pupils of the school and the children of the immediate neighborhood.

It is now apparent that this may be successfully accomplished through the agency of this splendid city planning movement—a movement for God and humanity and the making of a better world.

We all know that if we think in terms of narrowness so will we live under like conditions, and we should now realize that we have thought in terms of narrowness altogether too long—at least on the subject of school sites.

So, therefore, basing my views and conclusions upon the background of that which has taken place in our own city, I should say that it was entirely feasible to lay out school sites coincident with that of any future city street plan and with the absolute certainty of that being required as such.

Moreover, I think that some means should be devised whereby the people should be brought to a realization of the importance to them of insisting that their municipal authorities demand and secure a reservation of sites for public schools together with their playgrounds, as being just as essential a part of a proposed city plan as streets, parks, or other spaces for facilities.

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JEFFERSON C. GRINNALDS, *Baltimore, Md.*

I wish to emphasize what Dr. Strayer has said about the place of public schools in the city plan. We are just in the midst of drawing a street plan for Baltimore for sixty square miles of territory recently annexed to the city. A zoning campaign is under way and the tentative plan is being drawn. The school program is being evolved and carried out at the same time.

All of the schemes for development which are a part of the city plan should be considered along with the school plan. The major street plan or arterial system should be laid down first and the selection of a school site should be made with reference to the major street plan and to the location of the residential areas. The zoning plan will indicate where the residential areas are situated.

I have in mind one proposed school which Dr. Strayer referred to in the northwestern suburbs of the city. Two major streets come together in a sort of "V", both of these streets are heavily traveled thoroughfares, 80 feet wide. They have some local business centers and some day it may be expected that they will develop into commercial streets. Running laterally from both of these streets are minor residential streets and in the heart of the V between the lateral residential streets is a pie-shaped sector of open country. This school is to be built practically in the heart of this undeveloped sector. It seems admirably situated from a city planning point of view because it is between the two residential sections which border on the major traffic streets.

Those who are familiar with Baltimore know that Howard Street is now a high-class retail shopping street. Its development however for this use has been retarded in two or three blocks for many years. Three blocks of the street are taken up by the Baltimore City College which is the male high school, the old Johns Hopkins University buildings and a convent. I became a student at the Balti-

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more City College the first year it was open in 1899. It is not now in the center of the city and Howard Street at that time had not developed to its present degree into a high-class shopping street. It is safe, however, to say that had zoning been in effect at the time the city wished to build this high school Howard Street would have been designated for commercial use, that the school would not have been built where it is today, and that it would more than likely have been placed with some reference to the population distribution, the street system, and with reference to the city plan generally. The expense and inconveniences of moving that school, which is now contemplated, would have been avoided.

Let me repeat that the proper way to build up a school system is to recognize it as part of the city planning program and to work that, the street layout, and the zoning plan cooperatively and simultaneously.

COL. A. P. MELTON, *Gary, Ind.*

We come from Gary, which is a small city compared with some of those discussed, and possibly our affairs will not be of general interest. However, I noted that Mr. Lewis referred to the work-study-play school system, which originated with Dr. Wirt of our city. We have a city planning commission of which Dr. Wirt is a member, and it is due to his efforts that we have developed a school building program along lines almost identical to those recommended by Dr. Strayer in his very interesting paper. Our first school sites in Gary, the Emerson and Froebel had 10 and 12 acres. We now have six more sites, Horace Mann 19 acres; 18th Ave., 34 acres; 24th Ave., 20 acres; 35th Ave., 20 acres; 45th Ave., 25 acres and Tolleston 12 acres. These sites are so situated that the least maximum distance to walk is one half mile and the greatest three-quarters of a mile.

We are building on five of these sites this year. Our

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plans provide for a three story main building 177 by 280 feet and two 2 story shop buildings each 46 by 124 feet. We are building one of the shop building on each site and by putting in temporary partitions make it into an eight room building, to be used until such time as conditions warrant building the larger building. We agree with Mr. Strayer that 24 rooms should be the minimum for a city school, and in fact our main buildings are much larger.

Our playgrounds are part of the school plant and are supervised by the school authorities. At our 18th Ave. site we are designing a stadium seating 16,000 people. The athletic field inside this stadium will have a quarter mile track, football and baseball grounds and room for other athletic events. All the big games for all the schools will be played at this field. All the other sites will have similar athletic fields but will not be so elaborately developed as the 18th Avenue field.

It will no doubt, be interesting for those who are interested in this phase of city planning to follow up the Gary program of school building and observe just how the sites selected work out in the future.

JOHN NOLEN, *Cambridge, Mass.*

The physical plan in connection with urban school properties and the administration requirements are good things to be tied up together, as has been done in this program. A planner who travels about the country in connection with the work of cities is astounded by two things. The first is how low the standards are in most cities with reference to the size of school properties, especially in the great middle western country where there is so much land. In many places a double house lot or a quarter of a city block is all the space allotted to a school.

Another astonishing thing is how comparatively easy it is to get city governments and boards of education to

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change their standards with regard to the amount of land needed for school purposes. If the proposals are properly presented, especially in connection with a comprehensive city plan, they accept it, recognize its reasonableness and act upon it. Many illustrations could readily be given.

If the size of the school property as stated by Dr. Strayer is to be based on the number of children attending the school, is it not necessary to recognize that city property usually runs in blocks, and that it is necessary, therefore, to acquire property for schools in units of blocks? Even a half block is unsatisfactory on account of the poor control of the surroundings, especially as the half block in many American cities means an alley as a boundary.

The high school site is a special problem, and I am gratified to note from Dr. Strayer's remarks that he strongly approves of the high school and the athletic field for high school students being wherever possible one unified property. Many seem to think that the high school can stand on a site simply sufficient for the school building and the athletic field be remote from it.

MR. STRAYER.

From the standpoint of administration and disciplinary control every element is affected adversely if the high school is separated from the athletic field.

In making city plans the association of park property with school property should be considered, but schools should be in the residential centers. Lines of transportation are more important than parks.

E. S. DRAPER, *Charlotte, N. C.*

In Charlotte most of the children are carried to school by auto, those not having autos being picked up by those who have. This necessitates a trip several times a day, which brings us to the question of a one session day. What is your opinion of a school day?

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MR. STRAYER.

We are definitely moving toward a longer school day. I personally believe in a longer school day. I believe it will come to be eight hours. My boy goes to school from 9 A.M., to 5 P.M., and I would not want this time to be shortened. I believe the long school day will come everywhere.

HARLAND BARTHOLOMEW, *St. Louis.*

Most of us agree about the necessity for a school location program and on the elements of city planning, but there seems to be a difference of opinion on the division of responsibility between the Educational and Recreational agencies. Should the entire responsibility for playground properties and administration be in the hands of the Board of Education?

MR. STRAYER.

The entire responsibility for playgrounds for children of school age should rest with the Board of Education. They haven't done much because there hasn't been enough money. The Boards of Estimate and City Councils have repeatedly refused to give funds to carry on that type of recreation. The real answer, as I see it, is the education of the public to the place where they demand recreation facilities for children.

CHARLES H. CHENEY, *Los Angeles.*

We on the Pacific Coast want to live up to the standard, so I would like to ask you two questions: Do I understand that you endorse six acres for elementary, fifteen for junior high, and twenty for senior high schools?

What is your idea of the minimum size school?

Mr. Strayer:

I suggest a minimum of 100 square feet of land per pupil.

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In almost any instance we could work toward a minimum of a twenty-four to thirty-two room school. Mr. Snyder is building a seventy-two class room school in New York. An elementary school of thirty-six to forty-eight class rooms does not seem to be over-size. I should rather have the expert supervision possible in a larger school, both from the standpoint of education and economy, than to have what I could afford to buy if broken up into smaller buildings.

MR. SNYDER.

I am of the opinion that it should be made very clear that the minimum of 100 square feet play space for each pupil is to be exclusive of the area covered by the building, which would necessitate that the size and height of the building should have been taken into consideration at the time the plot was selected.

As to the depreciation of property values due to the erection of new school buildings. It may be that such might occur in certain finely developed residential localities, but I do not know of any case in our city where there has been any such depreciation, but, on the other hand, there are instances where such location and construction of a building has increased the assessed valuation from 300 to 600 per cent.

This naturally occurs in undeveloped sections where the transformation is from open cabbage patches to four and five story apartment houses, simply because school accommodations are being provided in that particular neighborhood.

Nothing will develop a community more rapidly than the construction of schools in outlying and undeveloped sections provided there be transit facilities.

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H. T. CORY, *Los Angeles.*

An important phase of this matter has not been mentioned as yet. The social need with the large majority of people for caring in a thoroughly satisfactory way of children from two to twelve years old from 8 A.M. to 6 P.M., every week day in the year.

The servant question is a difficult one all over the country and in Los Angeles one who works eight hours and Sunday and Thursday afternoon off costs \$65. to \$100. a month, good quarters, board, laundry, etc. Thus a woman whose home and furnishings represent an outlay of not more than \$10,000 and has an automobile costing not more than \$1,800 cannot afford a servant unless in distinctly ill health. In other words, a woman who has less than \$2,500 a year to spend for rent, heat, light, furniture, and auto—exclusive of food and clothing—for her family, generally has no servant. This is not such a bad thing in one way, as one result is the children have some definite chores and responsibilities. There are so many automatic household contrivances, gas furnaces, Ruud water heaters, vacuum cleaners, electrical dishwashers, electric fireless cookers which turn on at a predetermined time, electrical egg beaters, etc., and no horses and cows, etc., that children nowadays have no things they must do each day like the chores which worried us, yet builded no little of our character.

However, the housewives are "tied down" and kept from "getting out" and "getting away from the house a while" by quite young children. There are about $6\frac{1}{2}$ children to the family in the country, $3\frac{1}{2}$ to the family in the city, and less than one to the family in the moderate income cultured classes. There are several reasons for this of course. The child on the farm begins to become an economic asset around ten, in the city he remains an economic liability until eighteen to twenty-two, depending upon the family ambition for education of the

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boys and girls. The servants strikes and the landlords strike on children are important factors. But another large one is the "tying down" of mothers until the babies are in school both morning and afternoon and then in supervised play until at least 5:30 P.M.

I do not know what percentage of American mothers have less for their household and automobile purposes than \$2,500 a year, but it must be well into the nineties. Isn't that such a preponderating proportion as to make it wise for city playground planners to prepare for the—to my mind—inevitable day-nursey adjunct to primary schools?

Although but an engineer, I am one of a general planning staff for a very large and very modern urban development near Los Angeles—Palos Verdes Project. I cannot speak for my colleagues but I personally will urge that we make provision for playgrounds about the schools, undertake the care of children 2 years and up from 8 A.M. to 6 P.M., every week day in the year including lunch, if the parents desire and will meet the expense, keep milk bottles in refrigeraters and heating appliances there for the littlest tots, and supervised play for all the laddies and lassies when out of school or during vacation, and indoors when it rains—we have no snows out there.

Making no provision for day nursery play grounds out door and in door and all year round in our recreational spaces, in my opinion, means doing the whole weary program over again within the next decade or two.

In short, the social significance of providing supervised play for children from two years or even less on up, is, to my mind, tremendous.

GEORGE B. FORD, *New York City.*

There is one aspect of the question that has not yet been brought out, and that is, how are the parks, playgrounds or school sites going to be paid for? How are we going to locate and lay out our parks, playgrounds and school sites so as to create the best reactive effect on abutting and

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surrounding private property?

In practice, we find that if this question of the reactive effect is kept constantly in mind, and if every possible solution of the particular problem is examined, that, by a process of elimination, there is always one location and layout which stands out above the others as the one which will create the happiest effect on surrounding property in proportion to the service rendered; and that it is often possible, even in our built-up areas, by utilizing centers of deep blocks or blighted districts or low-valued, relatively improved land, to make the project pay for itself in new values created, against which most of the cost of the improvement can be assessed.

It is often said that schools have a harmful effect on surrounding property values. This harmful effect, if it exists, is due primarily to the noise of the children going to and from school or during their recess periods.

A suggested solution of this problem is that schools, where possible, should be built on sufficient ground to allow for a playground close to the school, while both the school and playground would be surrounded by a belt of park land with trees between them and the streets. This park tree belt would act as a barrage, mitigating the noises, and at the same time, it would give a charming outlook and place of promenade and recreation for abutting and nearby property owners. The damage to surrounding property, due to the school and playground per se, would be changed into a benefit by the surrounding park belt. It is conceivable that the benefit might be sufficient, in certain cases, to pay the entire extra cost of the park belt.

In locating parkways, the first question one asks oneself is how they are going to be used. In practice, their chief possible use at the present day is for motoring in and out of the central business or industrial districts on the way to or from the office, store, factory, school, theatre, church etc.

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To that end, every attempt should be made to so locate parkways that they are readily available to serve each part of the community with ready automobile access to the center.

These radial automobile parkways should alternate with the traffic thorofares on which would be concentrated the heavier traffic and the street car lines. The same principle applies in lesser degree to circuit boulevards and traffic thorofares.

THE TREATMENT OF THE RIVER FRONT

COL. STANHOPE E. BLUNT

President Springfield, Mass. Park Board

A brief glance at the changing conditions which have influenced Springfield's relation to its adjacent river in the period elapsing since its settlement 286 years ago is advisable before we examine the problem in its latter day bearing upon our present life.

The first settlers found a noble river approximately one quarter of a mile wide, which, flowing from the snows and springs further north, afforded a plentiful and perfect water supply, if they desired to use it for that purpose, and also at all seasons ample depth for such simple transportation facilities as the age then demanded.

The banks sloped up about fifteen or twenty feet above the normal height of the river to a fairly level bench about one-fourth of a mile wide, which, however, broadened at the north to double that width and contracted at the south to only a few hundred feet. At the eastern limits of this bench a further rise, generally gradual, but occasionally quite abrupt, led to the broad expanse of outlying territory extending beyond the settlement's limits for several miles to what we now know as the Wilbraham Mountains.

Other adjacent settlements grew up and were by the General Court at first included in Springfield's territory, West Springfield, Westfield, Suffield, Holyoke, Agawam, Chicopee, Enfield, Wilbraham, etc., but most of these were separated from Springfield about 120 or 150 years ago. Some of these places rivaled the parent village in importance; in fact, for many years West Springfield had the greater population, and it is only about 100 years ago that Springfield finally took the lead.

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At that time Springfield had less than 4,000 inhabitants, West Springfield slightly over 3,000, and some of the neighboring towns, between 1,000 and 2,000. By 1850 Springfield housed 12,500 people, and two years later, or just seventy years ago, the town became a city. Its growth has since been steady and certain, and with its 135,000 or 140,000 today the old town with nearly 300 years of history behind it must be recognized as well on its way towards a metropolitan community with all the attendant complications and responsibilities.

Our forerunners took their obligations to their successors very lightly; the towns were generally permitted to grow as they willed without restraint or guidance; planning boards were unheard of, and if any progressive citizen had evolved imagination enough to dream of possible developments and with practical foresight to suggest concerted action for the town's benefit it is probable his efforts would have met with a larger share of opposition and ridicule than of approbation. This indifference has left its impress upon our city's plan with its many narrow and unconnecting streets, and it has also unfortunately been responsible for certain failures to conserve inherent facilities or to properly develop them, and of these the most important center around our magnificent river, its possible navigation, the means of crossing it, and the use of the river bank.

NAVIGATION

In the earlier days communication with neighboring towns was mostly by stage coach, the farmers' wagons and the private carriages of the more affluent citizens. General freighting up and down the river was done in flat boats, sailed when the wind permitted, or pushed along by poles.

Later, when the small canal at Windsor Locks was completed this freighting business was extended to Hartford or even down to the river's mouth. To these flat boats

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were added early in the last century, when the steamboat was first introduced, a fleet of small steamboats for carrying passengers and freight between Springfield and Hartford. Some of these boats were sidewheelers, others stern-wheelers, and with hinged smoke stacks permitting passage under the low bridges then crossing the river, and they were all of the modest dimensions suitable to the opening in the dam and the narrow channel at Warehouse Point.

For a number of years these boats did a lively business, their journeys extending between Springfield and points as far south as the mouth of the Connecticut, and as far north as Well's River, Vermont. Competition between the different boats became very active and I find it stated in one of the histories of this locality "that passengers were carried either way the 26 miles between Springfield and Hartford for twelve and one-half cents and sent home in a carriage at their journey's end."

These steamboats were, however, rendered unprofitable by the opening, in 1844, of the railroad between Hartford and Springfield, and soon thereafter were withdrawn from business. Since then there have been sporadic efforts to re-establish actual navigation; arrival of a few coal barges demonstrating its practical possibility, but its economic failure with the present restricted waterway at Windsor Locks. Passage of the general navigation and water power bill at a recent session of Congress, with the prospect that water power interests will develop the power at that point, and also its accompanying navigation feature, permit hope that in the not far distant future an enlarged canal and increased depth of water will so improve facilities as to encourage the establishment of larger freight boats and such increased commerce as will make them profitable.

Plans contemplate locks of 130 by 30 feet with a depth of 12 feet at the Enfield dam near Warehouse Point, and if the corresponding river improvements below the dam are

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also carried out it would be possible to bring 2,000 ton coal barges up to Springfield, and a considerable amount of other river traffic. This development cannot be immediately expected, but one is not too sanguine in hoping for its realization before many years.

In the meantime it is probable use of the river will be limited to a few small steamboats carrying passengers to summer resorts at short distances from the city, and to pleasure boating.

For such purposes the river affords wonderful facilities, its moderate current, its broad expanse, and the views of the banks, generally, if not throughout, attractive, have brought at times in the past large numbers to witness races, and many of our own people to enjoy a lazy sail or row of a summer night.

Access to the river bank at a number of points meets fairly adequately the present demand. If real navigation ever comes, the industries now established along the river bank can provide their own docks, and for public docks a few locations are still available.

FERRIES AND BRIDGES

No general conveniences were provided for carrying passengers and freight across the river until 1674, when a ferry was authorized on the Connecticut from what was then the southern part of Springfield to the opposite mouth of the Agawam River; this ferry, it may be mentioned, was maintained for over 200 years. Later another ferry was established; its location is still suggested by the Ferry Street of today. All sorts of traffic used these ferries at tolls less, to be sure, than those exacted from automobiles by the few remaining toll-bridges today, but which must have been a considerable tax upon the traveler or merchant of that time.

The first toll bridge from Springfield to West Springfield was opened in 1805; it was 1234 feet long, 30 feet wide,

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40 feet above low water mark, and cost \$36,000. Either from faulty design or construction, or possibly as was asserted, because of weakening due to unusual floods and to heavy loads of muskets and other supplies from the United States Armory, it gave way and was torn down after only nine years of use. The second toll bridge, on the site of the first, built mostly from the proceeds of a lottery, was opened for travel in 1816. Partly carried away in 1818 it was restored in 1820, and repaired and strengthened at intervals since. Fire has attacked it often. Made a free bridge just 50 years ago it seemed to take a new lease of life, and in spite of the increasing loads of the present day it is still handling a large amount of traffic apparently as serviceable as if only a few years old instead of over a century. It has fully earned honorable retirement, and with its expected removal a few months hence now passes into history.

The Boston & Albany Railroad bridge was built in 1841. It was replaced in 1855 and again in 1873, and remodeled in 1913.

The North End traffic bridge from the northern part of the city to West Springfield was built in 1878, at a cost of \$170,000; the South End bridge from the south part of the city to Agawam was built in 1879 at a cost of \$116,000. These bridges have undergone considerable reconstruction, the lower one raised, and both from time to time repaired and strengthened. They are really overloaded by the heavy automobile trucks of this day, and not of sufficient capacity for the increasing traffic. It is probable that before very many years, if this city and its neighbors continue to grow and prosper, and automobiles to carry an increasing amount of the country's commerce, that both of these bridges will have to be rebuilt upon considerably enlarged dimensions.

Consideration of a modern bridge to replace the old toll bridge and to provide a suitable and commodious means

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of communication from the city's business center to the west has provided a fruitful source of discussion in public and private for the past 20 or 30 years. Several local commissions studied and reported upon the problem which was intimately connected with the locations of the different railroads entering the city, but no suggestions for materially modified locations of the railroads were deemed satisfactory, and finally the problem of a bridge itself was divorced from the more general one, the present location of the New Haven Railroad, accepted in principle and the subject taken up anew six or seven years ago.

The River Front act of 1907, which dealt with railroad locations as well as bridges, had expired in March, 1915, through failure of the city to approve any of the plans presented, and by limitation and after considerable public discussion, taking advantage of that fact, the City Council in April 1915 requested the City Solicitor to prepare draft of a bill for presentation to the Legislature authorizing the Supreme Judicial Court to appoint a commission of three, none of whom should be residents of Hampden County, to consider and determine the location and size of a new highway bridge and to provide for its erection. This bill was passed in May 1915.

In the following September the Hon. John L. Bates, Hon. Joseph H. O'Neil, and Mr. Joseph R. Worcester were designated as the Commission, empowered to give hearings in this city as to site of the new bridge, choose a location, determine a plan for its construction, take over the necessary land and apportion the cost among the towns of Hampden County.

These hearings were begun in November 1915, and continued for over two months, arousing great interest and some strenuous efforts in presenting their plans from the advocates of different locations, the two mostly favored being those starting from the foot of Court Square and from the foot of Bridge Street, the former with approach

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crossing over the New Haven's tracks; the latter with two separate plans, one for an underpass at Bridge Street, and the other crossing over the railroad.

The commission appointed Messrs. Fay, Spofford and Thompson of Boston as engineers of the bridge, and proceeded for eighteen months with a thorough study, finally presenting their conclusions in June 1917. It would seem that they had endeavored to find a compromise between the Bridge Street and Court Square locations, for they decided upon a bridge slanting diagonally upstream with approach starting from Broadway and Pyncheon Street near the west side of the auditorium and reaching the opposite bank at a point in West Springfield where the old toll bridge had its termination; the width to be 60 feet, or two sidewalks of nine feet each, and a road way of 42 feet, thus providing for a double trolley track with a single road way on either side; the total length of bridge with approaches to be about half as wide.

It cannot be said that this design was received with much favor; the diagonal feature was unfavorably criticized and the narrow width universally condemned. The springing of the actual bridge from a point near the foot of Vernon Street was accepted both by the former advocates of Court Square and of Bridge Street, and the old diverse opinions were therefore crystalized into a single demand for a wider bridge crossing direct from Vernon Street.

This sentiment, widely expressed, so manifestly voiced the prevailing feeling of the city (rather a suprising episode after the repeated failures in the past to agree), that the Commission decided to take the subject under further consideration.

World War activities prevented early action, and it was not until September 1919, that the final plans for a bridge, as we now see it approaching completion, were presented. They met with public approbation, and receiving approval

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of all authorities, bids were soon invited and contract let April 3, 1920.

The bridge has been built by Hampden County under direction of Hampden County Commissioners, H. P. Converse & Co., of Boston being the general contractors. The bridge, in line with Vernon Street in Springfield, crosses first over the New Haven tracks by a series of reinforced concrete spans resting on piers. This viaduct 300 feet long consists of nine spans, the floor being made thin and flat to occupy the least practicable room between the pavement of the bridge and the clearance line of the railroad. This clearance above the tracks is eighteen feet.

The bridge proper over the river is 1,200 feet long, and consists of seven reinforced concrete arch-ribbed spans, five ribs to each span. The channel span has a length of 172 feet in the clear, at mean low water, between its supporting piers; the clear headroom above mean low water is 45 feet at the center and 40 feet for a distance of 30 feet on either side. The channel span and the piers supporting it are so located and designed that if required the arch can be removed and a draw substituted. The other spans are of varying lengths, the shortest being 110 feet long. The bridge is built to a curved profile.

The bridge reaches the West Springfield shore at a point about 500 feet southerly of the west end of the old toll bridge; as nearly all the town lies north of this termination arrangement of the approaches did not involve any considerable alterations in existing streets, but the addition of several new ones providing communication in different directions.

In Springfield the problem was more difficult; the bridge reaching the west side of Water Street at an elevation of 16 feet above that street it became necessary to raise Water Street at that point with slopes extending 450 feet to the north, and 550 feet to the south, and also to raise by varying amounts several intersecting streets. As most of these

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streets were made 80 feet wide, the same as the bridge, the cost of the east approach both for actual construction and from the property damages done to abutters has been considerable. Except for a grade slightly less than four per cent. on Water Street to the north the maximum grade on the bridge or its eastern approach is $3\frac{1}{2}$ per cent. Along most of the bridge proper and the viaduct over the fifteen tracks between Water Street and the river, it is much less. In West Springfield the principal approach from the west is nearly level, increasing to 2 per cent upon nearing the bridge.

The bridge is 80 feet wide, has two sidewalks each 10 feet wide, and a 60-foot roadway. The total cost of bridge and approaches, exclusive of land takings and damages, has been about \$4,000,000. and possibly these other expenses may amount to nearly \$2,000,000 more. A large sum, but with it Hampden County has obtained a durable, commodious and also monumental bridge which should for many years provide a roadway across the Connecticut ample for all demands that a growing commerce and increasing population may make.

RAILROADS

Springfield owes to its railroads more than perhaps we fully realize. At the intersection of routes running north and south, with main lines from the west and east, it has grown to be a busy railway center providing ample transportation facilities for the convenience of out of town customers, carrying away the products of its factories, and attracting to the city the mechanics and other workmen required for operation of its repair shops and extensive freight yards.

The first train between Worcester and Springfield was run in October 1839; three years later the road was in full operation to Albany. To the south the Hartford and Springfield road was completed in 1844. To the north the road

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was finished as far as Greenfield by 1847. In subsequent years several smaller branches of these different lines were constructed from Springfield to other towns, forming quite a net work now consolidated into three main corporations, the Boston & Albany, the Boston & Maine, and the New York, New Haven & Hartford.

The latter road has exercised the greater influence upon the development and use of our river front. The Connecticut Valley providing the most practicable route from the south, the simplest to construct, and the cheapest to operate, was naturally followed by the railroad, and reaching the southern limits of the city through the narrow gateway between the bluffs and the river continued along the river bank to its junction with the Boston & Albany at the eastern end of the latter's bridge across the Connecticut.

The new road was welcomed by the community; providing facilities much superior to the river steamboats it superseded them, engrossing traffic as well as the river bank, and without any objection from the citizens of that day. With the continuing increase of its business, additional space was required for breaking up yards with their numerous storage tracks, for car freight loading tracks, freight station, roundhouse, engine coaling plant, and numerous other buildings needed in the operation of the road until nearly all the land adjacent to the river west of Water Street extending for almost $2\frac{1}{2}$ miles from the southern limit of the city to the Boston & Albany Railroad bridge was occupied by the railroad, preventing easy access to the river and introducing complicating features in any arrangement of approaches to a possible highway bridge across the Connecticut.

About 25 years ago desires for improvement began to interest many people, finally leading to the appointment in 1902 of a commission, of which Mr. Nathan D. Bill of this city was chairman, to consider the subject of a new bridge. Some years later the New Haven road acquired a dominat-

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ing influence in the affairs of the Boston & Maine, and also an improved understanding with the Boston & Albany, but at that time the New Haven seemed principally desirous of securing better connection between its main line and its Highland branch, so called, at the east, and the influence of these changing conditions must be recognized in considering the different stages of the discussions with that road that followed.

After extended consideration and conferences with the president of the New Haven road, Mr. Bill reported that the road would deed to the city all its property along the entire river front west of Water Street if the city would pay for the necessary stretch of two track railroad from the Longmeadow line, across the river, up to the west side and back again across the Connecticut, and would in addition enable the railroad to acquire at its own expense a two track right of way across the city to the east. The first estimate of cost to the city of this construction was over \$2,000,000 but later Mr. Bill secured from the New Haven president assurances that he would move his tracks to the west side and ask from the city only \$933,000.

Extended discussions followed, the people being by no means unanimously in favor of the project, but its advocates secured the passage by the Legislature in 1907 of what was termed the River Front Act, which designated the state board of railroad commissioners as a special commission to determine the problems involved in the proposed improvement, and to devise methods of connecting up in Springfield all the New Haven lines still preserving to the New Haven its connections with the Boston & Albany and Boston & Maine. The Springfield board of park commissioners were also authorized to acquire for a public park the river front holdings of the New Haven. In the following year an advisory commission of Springfield citizens was formed, of which Mr. Bill was chairman, and the eminent engineer William Barclay Parsons was engaged as

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consulting engineer. Two years later Colonel Parsons was retained as engineer by the state board of railroad commissioners.

The railroad commissioners made several visits to Springfield, held hearings and examined numerous plans for retaining the tracks on the east side, with depressed tracks, raised tracks, and different locations, as well as the transfer to the west side, which latter project was no longer held in such favor as at first. Many of these plans were quite ingenious, but too often the different features of the problem were only partially considered or inadequately solved, and no unanimity of opinion was manifested.

By this time the New Haven road had become more interested in a combined freight yard with the Boston & Maine in Hampden Park, and in securing improved direct connection with the latter road for freight and passenger traffic, and seemed to have grown cold toward a river front park with removal of its tracks to the west side. The matter dragged until finally the commissioners decided to proceed with the original plan presented by the River Front Act, made surveys and estimates, and in 1911 submitted Colonel Parson's plan conforming to the provisions of the Act, which, considering only a few of its features, moved the New Haven road to the west side, provided for great freight yards in Springfield adjacent to the present Highland division. This division was also connected with the present main line of the New Haven by a line running across country from a point south of Forest Park to the Highland division, that division to be also elevated, connected with the Boston & Albany and extended by a branch from the latter to connect with the Boston & Maine near the Chicopee line.

Hearings followed on this report, but apart from disagreement with many of its provisions the excessive cost, possibly nine or ten millions of dollars, resulted in no

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further action and the original River Front Act of 1907 was allowed to lapse.

In January 1913, another commission comprising the Mayor, one alderman, one member of the Common Council, and three citizens of Springfield was established by orders of the City Council "to consider any matters connected with the River Front, Navigation, Bridge and Railroad problems." This body, known as the Municipal Transportation Commission, in its report rendered in July 1914, after referring to the many plans produced in the preceding years and which they stated they had carefully studied, decided upon retaining the main line tracks of the New Haven road in the general locations they then occupied, but removing all subsidiary tracks, storage yards, freight houses, etc., etc., to Hampden Park, north of the Boston & Albany tracks, where new yards, freight houses and other facilities for the New Haven and also for the Boston & Maine, more than doubling their former capacity, were provided, sufficient for any probable development for a number of years.

Connection for passenger trains between the Boston & Albany, Boston & Maine and the New Haven roads was unchanged, but for freight between the Boston & Maine and the New Haven two tracks passed under the Boston & Albany near the latter's bridge head to the new yards in Hampden Park, the Boston & Albany at the bridge being raised 7.8 feet. This would also possess the further advantage of securing increased clearance under the Boston & Albany tracks, or diminished grade of street approaches, or both, at Water Street, Main Street, Dwight Street and Chestnut Street.

The Transportation Commission recommended the widening of Water Street and a location at the end of Vernon Street for its bridge (as has since been done for the present new bridge), the West Springfield terminal to be 400 feet below the old toll bridge, instead of 500 feet

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as later adopted for the new bridge. The West Springfield approaches were to be much as now being constructed, but in Springfield instead of raising Water Street at Vernon sixteen feet with slopes on it and in the adjacent communicating streets, Water Street and all connecting streets were to be retained at their then existing grades, and the approaches were curved to the north and south extending approximately parallel and to the west of Water Street. The northerly ramp was to have a grade of 3.3 per cent, the southerly slightly less than 4 per cent, and to terminate opposite Worthington Street and Court Street respectively, these grades following from a clearance of the bridge over the New Haven tracks of 22 feet, the amount that road then demanded. If the 18 feet adopted for the bridge now being constructed had been followed the end of the bridge head and the height of the retaining wall opposite Vernon Street could have been lowered four feet, and the grade of the ramps reduced from 3.3 per cent to 2.7 per cent, and 4.0 per cent to 3.3 per cent respectively, or slightly less than for the Springfield approaches to the present new bridge. These approaches would also have avoided the very considerable cost of the land takings and damages occasioned by the adopted Springfield approaches to the present new bridge. Direct approach from Water Street was provided by double stairways to the bridge for convenience of pedestrians opposite Vernon Street. Behind or at the sides of these stairs and under the area at the junction of the two approaches was space which could be utilized for a public comfort station or sanitary to be entered at grade from Water Street, the space being sufficiently extensive for a considerable development. A width of 88 feet was proposed for the bridge, permitting two trolley tracks and three lines of vehicular traffic on each side thereof.

Eliminating all the storage and freight car tracks now extending north of Elm Street and between Water Street

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and the river bank, and retaining only four main lines tracks, would relinquish several acres that could have been developed as small parkways adjacent to and north of Court Square extension, from which and from the curved approaches there would have been fine views of the bridge and of the river. The space now used for boat landings and boat houses would also have been lengthened.

As I have stated, this report of the Transportation Commission was submitted in July 1914; to say that it was received without enthusiasm would be too moderate, it was mildly criticized and then ignored. Several years afterwards one of the Springfield papers said of it as follows: "Despite the fact that expert charges were at the lowest possible point, and the cost was a wonderful reduction from that of the Parsons plan, nothing ever came of the report and the earnest efforts of the finest civic body ever appointed in this city came to nought."

This concluded the efforts in Springfield to remove the tracks or to reclaim from the New Haven Railroad any of the river bank, and in the subsequent planning of the new bridge just completed it was recognized that tracks, freight yards, freight house, etc., were to retain their present locations, and there I presume they will now remain as long in the future as the railroad wishes.

POSSIBLE USES OF PARTS OF THE RIVER FRONT

While the retention of the river bank by the main line and all subsidiary facilities of the New York, New Haven and Hartford Railroad will prevent realization of the dream of an extended river front park near the foot of Court Square, there yet remain many parts of the shore available for the public use as small parks or as boulevards.

The Park Department has been considering for several years the possible construction of a boulevard through the

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eastern portion of the city, largely on land now vacant, to connect Forest Park on the south with Van Horn Park on the north, and already some of the necessary land has been secured through gifts. It is now hoped that additional gifts may permit the extension of this boulevard through a most attractive glen or ravine lying partly in Springfield and partly in Chicopee until the junction of Main Street and Plainfield Street is reached just north of the Chicopee line.

Plainfield Street now runs from Main Street to the river. From that latter point for nearly a mile a number of streets have been plotted but not all constructed, that abut at right angles upon the river bank; there has been practically no building along this reach, and the Park Department has long hoped that a strip about 200 feet wide could be secured by the city, and a parkway with suitable planting and broad drive constructed along the river bank between the city's northern limit and the North End bridge. For this mile of river front the bank is bordered with fine trees and the view across the river is upon Riverdale Street in West Springfield, a handsome road bordered by its river bank on one side and by attractive residences on the other.

The North End bridge, the principal approach at present to the city from the northwest, enters Springfield between two small parks now undeveloped, but when completed as planned with park development next to the river and playground beyond, would provide a beautiful and dignified entrance to the city. These parks extend over one-fourth of a mile along the river; the northern boulevard above mentioned would enter the upper one, below the southern one the land along and back from the river forms part of old Hampden Park of former trotting track and bicycle race renown. The Boston & Maine Railroad now uses its southern and eastern portion, but along the river

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bank it is still unoccupied, and here another strip 100 or 200 feet wide should be secured and the river boulevard extended for about two-fifths of a mile, giving in all from the Chicopee line a river front boulevard and parkway of over one and one-half miles.

The northwestern portion of the city could thus be provided with an extended and beautiful river front development; it would lie opposite a reach where college boat races were held in the past, and if a suitable river wall were constructed access to the water and to boating could be made convenient and most attractive.

As the railroad bridge is neared the Boston & Maine has extended its occupation almost to the river, the boulevard would then be diverted to the east and pass under the Boston & Maine tracks by the present Clinton Street underpass to Fulton Street.

Fulton Street and its prolongation, Water Street, to and past the entrance to the new bridge is now, or soon will be, a fine street eighty feet wide; only occasional glimpses of the river can be obtained, and it must be granted that for some distance the street carries busy traffic.

[When the heart of the city, at Court Square Extension, is reached a subway under the New Haven tracks, in prolongation of Elm Street, affords access to the river and to ground now partly occupied by boat and canoe club houses, and excursion steamboat landings. It has a few fine trees and with further planting is susceptible of attractive development. It now offers a small breathing place, and if proposals to move the harbor line further to the west are ever realized, would be considerably increased in size and approach the appearance of a neat but small river front park. It involves for best development the construction of an intercepting sewer along the river bank, of a revetment or sea wall, and considerable filling to raise the grade

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above flood level, measures somewhat expensive, but the results secured would be an ample repayment.

As Water Street extends further to the south it becomes Pecousic Avenue, has an attractive central parking, and for the last mile below the South End bridge is close to and separated from the river only by the main through tracks of the New Haven road. Shortly before reaching the Long-meadow line the road ascends, Forest Park lying on either side, and towards the river another boulevard branches off through the part of the park called King Phillips Stockade, and passes along the bluff with wonderfully beautiful views up, down, and across the Connecticut. Thus it is possible to use for river front boulevards and parkways considerably over one-half of the city's total river frontage.

The opposite shore of the river is in West Springfield and in Agawam, but the view across is part of Springfield's heritage, and hopes are cherished that much of the frontage will be preserved for the public. A beautiful road now extends to the north for over half a mile from the North End bridge adjacent to the shore. From the new bridge to the south the Connecticut Valley Realty Trust, which owns much of the land in the Agawam meadows, has deeded a strip 200 feet wide by 2,000 feet long along the river bank. Some day a fine boulevard will be built there and should be extended across the mouth of Agawam River to the western end of the South End bridge, joining there the present river road to the south, completing on the western side a river front road, not continuous to be sure, but of over three and one-half miles opposite the City of Springfield.

Plans for these developments on the east and on the west shores have long been under consideration, and the acquisition of the property and commencement of the work await only the furnishing of the necessary funds. While

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Springfield, with the hold the railroads have upon the land they now occupy, can probably never secure a continuous and ideal river front parkway, yet it is practicable to obtain a fairly respectable and satisfactory substitute which would afford great pleasure and benefit to our citizens. Keeping the advantages and possibilities before the public may convince the people of the wisdom of early action, and lead in the not too distant future to the realization of these hopes.

Let all interested in making of Springfield a beautiful city, contribute their best endeavors to this end.

THE DESIGN OF THE STREET SYSTEM IN RELATION TO VEHICULAR TRAFFIC

ERNEST P. GOODRICH

Consulting Engineer, New York City

Springfield is the center of a district which may be said to comprise the western part of New England. This region was originally devoted almost exclusively to agriculture. During the past 50 years it has developed into a great manufacturing region. This was largely due to the considerable available water power. That the Springfield district is now industrial in type is demonstrated by the following facts:

(a) The percentage of population employed in industry in 1919 was 17.3 compared with 21.5 for Massachusetts, 33.4 for Holyoke, 35.0 for Chicopee, 20.9 for Westfield, and 25.0 for West Springfield.

(b) The percentage of native-born of native-born parents was low in 1920 in Springfield as was the case in all industrial districts throughout the United States; being 37.7 in Springfield, 31.3 in Hampden County, 31.9 in Massachusetts, 55.3 in the United States as a whole, and 73.9 in the agricultural state of Kansas.

(c) The value of manufactured products per capita and per employe engaged in manufacturing was fairly high in 1919, being \$760 per inhabitant in Springfield, compared with \$830 in Boston, \$1040 in Massachusetts, \$1553 in Holyoke and \$2480 in Chicopee; while the value per employe was \$4375 in Springfield, \$3670 in Boston, \$4930 in Massachusetts, \$4620 in Holyoke and \$7100 in Chicopee.

(d) A physical survey of Springfield and the surrounding communities confirms, through observation, the fact of the industrial character of the district.

The planning of the future of Springfield and her surrounding district should be based upon an analysis of the

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past history of industry in the region and its projection into the future on the basis of past performances in accordance with established economic and social laws. Such a survey has been started in a preliminary way by the Springfield Chamber of Commerce. The town of West Springfield is carrying on a combined city planning and industrial survey, and the Hampden County Improvement League contemplates a similar complete industrial investigation of the whole county in which Springfield is located. The county has an area of 622.5 square miles. The Manufacturers' Association of Connecticut is working upon a similar investigation of the state of Connecticut. The Preliminary Industrial Survey of Springfield was made by the same organization which is working with the Springfield City Planning Board upon the Springfield City plan, and is making the combined city planning and Industrial Survey for West Springfield.

The advantages of such a combined investigation have already been demonstrated. The types of desirable business and industry and those which are likely to prosper can be selected on an economic and social basis. The best theoretical size and shape of properties for existing industries and for additional selected ones and in the numbers which it may be expected that they can be drawn to each community, determine with fair accuracy the total industrial area which may logically be set aside under a zoning ordinance, and the sizes and shapes of the needed properties. Again, a given type of industry consumes and produces tonnage in a fairly determinate amount per employee. This data also makes possible the estimation of the amount of industrial street freight traffic.

In any factory the inbound tonnage in raw materials and fuel is probably slightly more than is the tonnage of the outbound commodities and waste products. They may be roughly assumed, however, as equal to each other. The per capita value of manufactures vary from communi-

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ty to community but the statistics of manufactures of cities disclose which are the predominant ones in each community so that the gross tonnage can be estimated approximately on the basis of values per capita and values per ton.

Food supplies, and clothing can be roughly estimated on the basis of the total population, the value per ton of such commodities and the average annual family budget. Building materials can be estimated on the basis of the values of new building reported and the average values per ton of building materials, making proper deductions for the labor cost of construction.

Industries located upon siding will receive and ship a considerable portion of their commodities directly by railroad. A certain percentage, however, will be received and shipped through local freight stations and by truck from team track delivery yards. A three day tally of freight tonnage received and delivered in Springfield from freight stations and team track delivery yards was made in the latter part of 1921, and amounted to 895 tons average per day. At least twice as much more was handled over private sidings. In Cincinnati the average annual freight was 2,700,000 tons delivered on industrial sidings through stations and team track delivery yards.

These figures for Springfield and Cincinnati amount respectively to 6.21 and 6.84 tons per capita per annum. Obviously they include manufactured commodities, food products, clothing and all other miscellaneous items. The total tonnage which enters and leaves New York City annually by rail excluding interchange, coastwise, export and import, totals 7.86 per capita. Of this, 1.20 tons per capita consists of food-stuffs, of which about 0.93 was for local consumption, 0.58 tons of building materials, 4.97 tons of fuel, and 1.00 tons of miscellaneous commodities. These statistics are valuable in computing street use.

The industrial population also determines with fair accuracy the amount and type of street railroad travel.

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An investigation of the laws of growth of communities whether they be families of fruit flies in a bottle provided with a constant quantity of food; or of human individuals in a nation, a state, a large city or even in an average community, (with a widening latitude of variation as the community decreases in size); or whether it be the production and consumption of an article of manufacture such as the bicycle, the automobile (in a limited district), or a special design of mouse-trap, all show that there is one basic principle. (Growth is at first slow with increasing rate and acceleration up to a certain point after which the acceleration decreases, the rate of growth comes to a maximum and the growing body changes the shape of its growth curve through a slowing down until a condition of "saturation" has been reached. Thereafter a state of continued activity at a constant or slowly increasing or decreasing size is maintained.) This condition may continue for decades or centuries until extraneous causes like the invasion which destroyed Carthage, the widening of the desert which covered Babylon, a change of the lines of merchant trade such as produced the dead cities of Holland, an epidemic such as decimated Memphis, brings to an end or materially alters the community life. Growth graphs have been analyzed for a large number of states and cities. (A study of these curves for various communities shows that a very definite period succeeds the attainment of the maximum of the third differential curve until the maximum of the second is attained and between it and that of the first differential curve. Assuming for the moment that each such interval is 20 years and that the growth of any community has so far progressed as to disclose a maximum in the third differential curve, the future growth of the community can be predicted with exceptional accuracy for a period of 50 or perhaps 100 years, barring cataclysmic contingencies.

An analysis of the relationship which may be assumed

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to exist between a central municipality and nearby communities shows that what may be called a sister city (such as East St. Louis with reference to St. Louis) seems to have a tendency to approach 25 or 30 per cent of the population of the central city.

A third line of investigation of the laws of population growth indicates that a law seems to work to determine the distance apart of cities of a given size. Studies have been made of the cities in New England and Old England. In New England the cities have more nearly reached their saturation points than is the case elsewhere in the United States but they do not seem to have become as well stabilized as in England.

Based on all these studies, curves have been prepared showing the probable future population of Springfield, of West Springfield and of other cities in the Springfield district. Assuming the curve for Springfield to be fairly accurate,* that the theoretically most desirable proportion of the population is to be engaged in industry, with a known area per employee in the average industrial plant, then the total area which should be set aside for industrial purposes by a zoning ordinance may be determined.

Investigations in Newark, reported to the Newark Board of Street and Water Commissioners by Irving T. Bush and E. P. Goodrich, jointly, in 1912, showed the average land occupied per industrial employe to have been slightly over 4000 sq. ft.

The estimated area devoted to industry in Elizabeth in 1920, was 18,720,000 sq. ft. This is equivalent to approximately 1,500 sq. ft. of land per employe. No large meadow tracts were included in the Elizabeth figures as was the case in the Newark estate. After careful study, 2000 sq. ft. per employe has been adopted for Springfield.

At the meeting of the National City Planning Institute held at Forest Hills on Feb. 13, 1922, the average popula-

*An estimate made 10 years ago of the probable 1920 population of Los Angeles came within 2 per cent of the actual figure.

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tion tributary to each of a score or more of lines of retail business (together with other social agencies like churches, schools, libraries and others), for cities of average size and for several specific communities was given. The variation in population served with different types of community was also discussed. A study of this data when compiled in diagrammatic form shows that industries and businesses can theoretically be grouped so as to make it possible for practically all hypothetical inhabitants of such a community to reach places of business and amusement from their homes without using transit facilities.

Based upon these studies and those of thirty or more communities of various types, it is possible to compute on an average basis the relative area which should be assigned to business compared with industry, as well as to that for residential purposes. Somewhat similar comparisons in communities with reference to one, two and multiple family houses, would indicate the relationship which should exist between the areas of homes for different types of residence.

The distribution of population throughout a community needs to be given similarly detailed study. A widening distribution is effected largely by transportation facilities. What may be called the fairly permanent density is roughly inversely proportional to the distance from the center of the community. This is, however, considerably influenced by topography, followed by such other factors as land values, social conditions of groups of the inhabitants, the presence of educational, recreational, and public utility facilities.

The application of these principles and factors to the specific case of Springfield was made by first preparing a population spot map, which gave the distribution in accordance with the 1900 census, the spots located in accordance with conditions as they were indicated by an atlas of that date. The increase or decrease between 1900 and 1910

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was indicated by other symbols. Using this map, graphs were drawn along radial lines from the center of the community, the ordinates of which showed the density of population in 98 small areas of equal size. The figures for each census year when combined for districts at equal distances from the centre and plotted, produced curves which closely approximated equilateral hyperbolas displaced equal distances from both axes of co-ordinates. This fact proves with exceptional conclusiveness that the average density of population in Springfield has in the past varied and now varies inversely as the distance from the business centre.

Together with such other data as the topographical map, the zoning map, the park, playground and school map, the preliminary street extension study map, and the land value map, these curves were then employed in estimating the probable distribution of population in the year 1946, when it is assumed that the population of Springfield will have doubled. With the probable distribution of population determined and the sites for industries, freight and passenger stations, business, schools, places of amusement and other social centers designated by the zoning ordinance and by city planning studies of the other features prepared by the City Planning Board, it is possible to estimate the amount of street traffic which will originate and terminate in each type of district. The total future street traffic at any point can thus be estimated and the number and width of thoroughfares can be determined thereby.

A detailed traffic census was made in Springfield like those which have been carried through for such other cities as Newark, St. Louis and Pittsburg. These all show similar characteristics. Density of travel varies approximately inversely as the distance from the center of the community except that there is usually superposed upon such decreasing traffic density an additional constant density due to through travel. Analysis of the statistics secured from State Highway traffic observations shows a

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similar law in the regions around whole communities; and even for sub-centers in cities the same law of inverse decreasing rate with distance is indicated.

Diagrammatic studies have been made of the total traffic along radii at various distances outside of Springfield, Worcester, Rochester and Buffalo. In each case the actual figures have been adjusted so as to be proportional to the population of the community. Each line represents the traffic around a whole city or in a few instances along a special radius. A guide line was drawn which showed the direction which should be taken by any line representing data which varied inversely as the square root of the distance. The striking similarity of the several traffic lines with this guide line is a strong indication that travel varies according to that law. The general parallelism of all of the lines also indicates strongly the law that traffic is proportional to the total population in a community.

Another diagram was prepared of the street traffic at the maximum rush hour in each of several cities plotted against the total population of the corresponding community. The uniformity of alignment of St. Louis, Chicago and New York is surprising and again indicates that the traffic is roughly proportional to the size of the community.

The average load per truck reaching and leaving New York City freight stations was 1.42 tons for 1772 trucks tallied during one late investigation.

Similar tallies were made at all freight stations in Springfield and also of the tonnage originating at and destined to that station from each of several districts of the city into which it was divided for purposes of analysis, the general character of a district being uniform throughout each one. Analyses were also made of the number of vehicles originating at and destined to various residence sections of the community. These averaged 0.98 vehicles per family per day for seven different districts which housed 2,500 families. The vehicles which daily cross the Pittsburg point

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bridges amount to 0.50 vehicles per family per day within a radius of five miles across the river. In the case of Portland, Ore., the corresponding figure is 0.75 vehicles per family per day for the population within a radius of four miles of the river.

The differences in the number of vehicles per family per day are to be explained on the basis of the above mentioned facts. It is natural that the larger the radius the less would be the vehicles per day per family. The numbers are consistent in this respect. The figures per family per day will doubtless increase in Springfield, for example, in proportion to the percentage of saturation which now exists with reference to automobile ownership. In 1920 there were licensed 309,156 automobiles in the State of Massachusetts which corresponds with 12.4 persons per automobile in that state. Corresponding figures for the State of Nebraska, for example, were 5.9 persons per car. The Springfield registration is almost exactly ten person per car. It will doubtless transpire that the number of cars in Massachusetts will eventually equal or exceed the ratio in Nebraska. This would indicate that the street traffic would logically be expected to increase in the same ratio.

On the basis of the figures for the traffic for the maximum hour for cities of different sizes, Springfield's traffic could not be expected to increase greatly for a number of years to come. The hampering local street plan is doubtless the cause of the heavy traffic disclosed in that city, and since the authorities are alert to the fact that traffic congestion is costly so that street extensions and widenings are necessary, there is not apt to be a very great increase in the total traffic at the maximum point during the maximum hour, because the contemplated widenings and extensions will relieve any tendency to increase where the traffic is now densest. That street congestion is costly was lately demonstrated in Worcester by a series of traffic observations which showed on the basis of usual rates for

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time, mileage and other factors that that city was wasting \$6,500 per day.

Automobile touring will doubtless increase with increased car ownership throughout the country. And since the saturation point in the eastern states is evidently more than twice the present ownership it is to be expected that through travel will easily double in years to come. A doubling in population will also double the freight tonnage which must be handled to and from railway stations for local consumption. Since the population will of necessity become spread out considerable distances from the present center of the community, the use of the present freight stations will be increased in proportion to the population unless new stations are located nearer the growing districts. The best city planning procedure is obviously to locate new freight stations rather than to try to provide ampler streets for increased freight business through the present stations. The latter themselves have practically reached the limit of their capacity so that new ones would soon be necessary in any event.

These analyses seem to indicate that street traffic may be expected to double in the outlying districts and treble on the main thoroughfares, but that in the downtown district and that in the vicinity of the freight stations is not likely to grow very much if proper provision is made for new downtown streets and for additional freight facilities in the outlying districts, in those parts of the city where new population will settle. The street system should evidently be designed for at least two vehicles per family per day average throughout the year on all local streets and on the secondary ones which connect any such residence district with the main thoroughfares. The monthly variation in street travel throughout a year because of seasonal conditions is considerable. Fairly average conditions are indicated for the month of October in all parts of the country. At a Connecticut traffic throat, the maximum attained was

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roughly twice the annual average. Further south, around Washington, D. C., for example, the spread between the average and the maximum is not so great.

Figuring on the basis of average conditions in the Springfield district and the number of weeks per year during which such maximum conditions were continuously attained, it seems obvious that street widths and capacities must be designated for at least twice the average. The traffic for the maximum hour compared with the daily average shows a somewhat similar spread. In the downtown district in Pittsburg, this amounted to 15 per cent. On the Washington-Baltimore road it was 30 per cent. On Main street, Springfield it was 40 per cent. Streets must therefore be designed with capacities equal to at least two and a half times the average travel per hour for average conditions throughout the year. In addition, account must be taken of probable future traffic increase due to increases in population and to further increases which will doubtless be caused by increased use of automobiles. These two latter items combined, are reflected in the statistics of past conditions contained in the following table:

STREET TRAFFIC INCREASE

City	Year	Location	Traffic at points counted	Average An- nual Traffic Increase %	Population Increase Per Annum %
Worcester	1915	Main St.	317	7	
	1922	" "	446		2.3
Cincinnati	1918	Many	76,202	22	1.5
	1921	Points	121,936		
Springfield	various	4	1,700		
			2,740	30	4.5
Newark	1912	Many	167,000		
	1915	8	2.0 Points		208,000

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Many papers have been read before the National City Planning Conference and elsewhere with reference to the proper design of the street cross section to accomodate different kinds of travel. A minimum width of roadway must be installed in practically all instances in which it is necessary to have space for one standing vehicle and room for an additional vehicle to pass it, or for two vehicles moving in opposite directions to pass comfortably. This means that every roadway should be at least 16 or preferably 20 feet wide.

Twenty feet is recommended because of conclusions reached from studies of vehicle width reported to the Cincinnati meeting of the National City Planning Conference in a paper entitled, "The Urban Auto Problem."

According to various authorities, a single line of conveyances moving in one direction at safe distances apart at a rate of only 8 miles per hour would pass 3,500 vehicles over such a roadway each sixty minutes. Double this number could use a twenty foot throughfare were no parked vehicles permitted. If, however, a vehicle is parked on the average in front of every fifth house and the traffic on the street is assumed to move in equal quantities in each direction it is estimated that only 1,200 vehicles can use such a roadway per hour. Intersections with many turning and crossing vehicles will still further cut this down. From theoretical considerations, if any cross street carries traffic equal to one-third of that on a main thoroughfare the capacity of the latter is reduced to one-half what it would be without the cross travel. Based on traffic observations in New York City the number would not be expected to exceed 600 per hour. Theory and experience are thus seen to correspond with each other.

Six hundred vehicles per hour during the period of maximum travel would represent 4,000 per day, and at one family per fifty foot front lot in a single family dis-

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trict and three vehicles per day per family on secondary and minor streets, 4,000 vehicles would correspond roughly with 1,300 families, which in turn would occupy frontages aggregating 32,500 lineal feet of street. This is equivalent to an area of forty city blocks each 800 by 200. In two family districts the area would comprise twenty such blocks, while in an average multi-family house district as it is found in Springfield, Passaic or East Orange, only seven blocks would develop a saturating number of vehicles.

On the basis of 2,000 sq. ft. per industrial employe; \$2,500 value of product for employe per year; \$100 value of product per ton; 1.46 tons per truck load; it is easily computed that one truck load of manufactured product will be turned out for each 120 sq. ft. of land area used in industry; or 60 sq. ft. per load for both inbound and outbound tonnage. Obviously this includes all freight handled over sidings as well as that trucked through the streets. It must also be understood that it is the average for multi-story tenant buildings occupying small ground space and for large plants which use considerable quantities of land for storage purposes. Some factor must be applied to convert this to floor space in multi-story buildings and industries not provided with railroad sidings. Investigations in Brooklyn show this factor to be about 50 for five story tenant factory and concentrated manufacturing space. In other words, fifty times as much tonnage or one fiftieth as much area must be considered as that given by the broad average found above. This leads to a figure of one vehicle per day for each 300 sq. ft. of land used industrially in a concentrated manner. Investigations in Springfield disclosed one vehicle for each 700 sq. ft. going to and from freight stations, account being taken of the per cent of normal output being manufactured at the time of the observations. Even office buildings originate and receive some tonnage. Practically all the vehicles which go to

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them are used by tenants and visitors and have already been covered in the through traffic and the residence section analysis, which regions are their other destinations.

Using these several factors as a basis a further step can be taken. Wherever it is necessary to park on both sides of a street indiscriminately, the roadway should be at least 30 feet wide and the over-all street width at least 50 feet. It may eventually be necessary however, to restrict all such streets to one direction travel. Under such circumstances, were it not for interference at intersecting streets and for turns, 1,200 vehicles per hour could be accommodated 600 is however all that can be employed in estimating because of the conditions noted. In order to increase this capacity, eight to ten feet additional must be added to the width of the roadway and of the street for an additional line of traffic. The roadway would then be 40 feet wide and would carry 1,200 vehicles per hour with two lines of parking permitted. If street car tracks exist, the number of vehicles would be cut down to some extent depending upon the schedule and the number of passengers loading and unloading. The average street car speed on Main street, Springfield, in the congested area is only five miles per hour. Vehicles seldom can get ahead of a car going in the same direction. The street capacity is therefore cut in the ratio of 8 to 5. Using that proportion gives 750 for the estimated capacity of a street with car tracks and parked vehicles on each side. The actual counts for the maximum hour on Main street on October 15, 1921 were as follows:

Location	Time	Count
Main and State	10:00—11:00 A.M	865
Main and Bridge	2:30— 3:30 P.M	799
Main and Worthington	2:45— 3:45 P.M.	702
Main and Lyman	10:15—11:15 A.M.	677
Main and Union	1:30— 2:30 P.M.	552

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The theoretical figure was reached in an absolutely empirical manner, but the check with the fact tends to show the soundness of the theory.

The maximum capacity of roadways of various widths and with various types of parking and numbers of railroad tracks may be tabulated as follows:

ROADWAY VEHICULAR CAPACITY

Street Width	Roadway Present	Width Future	Parking		Car Tracks	Max. Hour	Average 10 Hr. day
40	18	20	One	Side	None	600	4000
50	27	30	"	"	"	1200	8000
50	27	30	Two	Sides	"	600	4000
50	27	30	"	"	"	750*	5000
50	27	30	"	"	One	500*	3500
66	36	40	"	"	None	1200	8000
66	36	40	"	"	Two	750	5000
100	54	60	"	"	None	2400	17000
100	54	60	"	"	Two	2000	14000

*One way street

Fifth Avenue, New York has a roadway width of 55 feet. On an eleven hour day in April 1919 it carried 18,617 vehicles. This is again an excellent check upon the theoretical figures.

A 50 foot street with a 30 foot roadway having been computed to carry 4,000 vehicles per day would thus serve a population of 6,000 persons (at three vehicles per family per day and 4.4 persons per family). Housed in single family houses on lots 50 by 100, with a percentage allowance for streets, this population would occupy 9,300,000 sq. ft. One side of a square of this area would be approximately 3,000 feet long. This means that main thoroughfares should be spaced not to exceed 6,000 feet apart in single family house districts. Corresponding figures give spacings

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of main thoroughfares of 4,000 feet and 2,500 feet for two family and the average multifamily house district respectively.

From a circulation standpoint, main streets should preferably be spaced one-half these distances apart, and alternate ones should be used as street car thoroughfares and exclusively for vehicular purposes respectively.

In average industrial districts the side of a square which would provide traffic enough to saturate a 30 foot roadway would be only 750 feet. In other words, main streets should be spaced not to exceed 1,500 feet apart in industrial districts. The latter should increase in width by ten feet each 750 feet as it approaches the center of a community or other destination of such traffic.

If a circular city be assumed with the business centre coinciding with the centre of the circle; if it be further assumed that the population density varies inversely as the distance from such centre; and if it be assumed that the daily average street traffic originating in any area is proportional to the population in that area, and that the general tendency of each vehicle is to pass through the centre of the community; then the total number which will daily cross any assumed circumferential street can be easily calculated. This has been done in the case of Springfield on the basis of the statistics already quoted and the check was exceedingly satisfactory, the error being only two per cent in a total of 12,000 vehicles.

With an increase in population the same law will doubtless hold, since it has been found to apply to cities of different sizes. With the amount of vehicle traffic foretold for the future, the street system can be designated with considerable precision. In determining street and roadway widths, consideration has been given to the fact that Springfield will become more and more the center of a considerable area, more or less circular in outline. In this connection

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also a complete system of parks, parkways and boulevards was designed, as far as possible radiating from the center of the community. These drives will carry only pleasure automobile traffic, other highways being provided for street railroad and for heavy trucking purposes respectively.

For example, with a total radiating travel of 60,000 vehicles, at 4,000 per traffic line per day, 15 such lines must be provided (plus two additional ones for parking purposes along each street where parking may be permitted), distributed to accord with future needs as determined by population, business and industrial distribution, limited as it will be by the zoning ordinance.

The Springfield through travel should be estimated at not less than 50,000 daily with 25,000 additional vehicles daily crossing a circumferential street one and a half miles from the business centre. The maximum hour of the maximum day would be expected to produce two and one-half times these numbers.

A detouring of as much through traffic as possible would seem an obvious procedure but there would still remain a large amount of through travel which will desire to pass through the centre of the city. Study of this matter leads to the conclusion that possibly thirty per cent might desire to use a detour,—based on the traffic counted on present travel routes. This leads to the conclusion that the radial street system should be planned for a maximum of 170,000 vehicles per day when the population of Springfield shall have doubled. To carry this travel seventeen radials have been planned. From the table of street widths it is seen that they should each have roadways averaging 55 to 60 feet in width as they leave the central district. The widths may be reduced gradually to 40 feet at points five miles distant from the centre of the city.

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Local centers like Indian Orchard must be treated in the same general way and the traffic around them superposed upon that of the larger community. Generally, minimum street widths required by general policy will provide amply for the traffic which is to be expected.

These extended studies lead to the following conclusions:

1. Vehicular traffic is found to vary in amount at the busiest point in a community in proportion to its size.

2. The total radial street traffic at equal distances from large communities of varying size is proportional to the population of each community.

3. The total radial street traffic at different distances from the center of each community varies inversely as the distance from the center.

4. A definite relationship exists between the amount of through traffic and the total number of automobiles licensed in that part of the country in which the community is located.

5. Through traffic may be expected to vary in the future in proportion to the degree of saturation of automobile ownership.

6. The amount of vehicular traffic originating in, and destined to residential districts is today approximately one vehicle per day per family.

7. Vehicular traffic from and to freight stations bears a definite ratio to the population and its proportion employed in industry, depending to some extent upon the dominating types of manufacture.

8. The amount of vehicular traffic created by industry may be closely approximated on a square foot basis of land and of floor space thus employed.

9. An industrial survey is the best method of approaching the creation of a city plan because it will provide data

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on the basis of which the future use of the streets can be estimated.

10. A zoning ordinance will definitely limit the amount of street traffic and provide the basis upon which it may be estimated.

11. The growth of communities shows that a general law is followed upon the basis of which estimates of future population can be made with considerable precision.

12. Cities will grow to a definite size depending in large measure upon the distance to larger surrounding communities.

13. The distribution of future population throughout a community can be closely estimated on the basis of the law of growth, the limit set by the zoning ordinance, topography, and social conditions which the community can establish.

14. In general, the density of population varies inversely as the distance from the center of a community.

15. The traffic during the maximum hour of the day varies from 115 to 140 per cent of the average hour.

16. The traffic during the maximum week is approximately double the average of the year.

17. Roadway widths should be designed on the basis of the number of lines of traffic which they must handle.

18. Traffic conditions at intersections limit the number of vehicles per line per hour to a maximum of about 600.

19. The main thoroughfares in single family residence districts should be spaced not to exceed 3,000 ft. apart; 2,000 ft. in two family house districts and 1,250 ft. in multi-family house districts.

20. In industrial districts the main thoroughfares should not be spaced more than 750 ft. apart.

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21. The total number of radiating streets which should be provided in any community can be determined on the basis of the amount of traffic which is to be expected.

22. The total width of the roadways of radiating streets can be determined on the basis of the traffic which must be carried.

23. The area allocated to zones for different uses in a community can be determined on a scientific basis.

24. The whole street transportation and street design problem can be worked out on a scientific basis.

THE FUNDAMENTALS OF TRANSIT PLANNING FOR CITIES

DANIEL L. TURNER

Consulting Engineer, New York City

In a modern city street railways are as essential as the homes of the people and the buildings in which they work. They are the connecting link between the two. They carry the people to work in the morning and bring them home again at night. They transport them to and from their shops, their friends and their amusements. They are the chief means of circulating and distributing the city's population. In all of their social and economic activities the people are dependent upon their street railway service. They have become so accustomed to such service that they accept it as a matter of course, and lose all sense of its vital importance to the community.

If the city is to prosper and is to grow, its municipal transportation facilities must constantly develop and expand. To utilize these carriers in its best interest, the city should own and control them. To be able to develop, expand and utilize its facilities properly, the city first must know the fundamental requirements of transit planning. When should the facilities be provided? Are they conveniently accessible? Are they sufficiently extensive? How should the facilities be owned? How should they be operated? These are important matters which every city should know. Every city should compel the development, the extension and operation of its transportation lines in such a manner as will best serve its needs.

THE EVOLUTION OF THE TRANSIT ART

At the outset it is interesting to consider briefly the evolution of the transit art. Starting with the horse-car line city transit is now ninety years old.

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Nearly a century ago, in the early part of the 19th century, people lived in a man and horse civilization. The railroad had not come. The population of the old town of those days spread out from the business center of the town just as it does today. The only limit to such expansion or to the area included within the town itself was the means of locomotion available for transporting the people to and fro within the town boundaries. Foot and horse locomotion was the only means at hand. The distance that the people would live away from the business center was a matter of the time they were willing to spend in travel, to their occupations in the morning and to their homes at night. Always in the past this time limit has appeared to be about one hour, an hour in and an hour out.

Now, with our madness for speed in all things, many people are unwilling to travel much longer than a half hour in or out—and as for walking, they have become so pampered with modern conveniences that to their shame they prefer not to walk at all. But the hour travel in a man and horse civilization meant 3 or 4 miles out for the foot travellers, and 6 or 8 miles for horse travellers. The workers would walk and the employers would ride.

The greater part of the population, who walked, were included within the 3 or 4 mile limit. This was the densely populated area. And this was the real town limit. The area between the 4 and 8 mile limit corresponded to our suburban districts of today. The wealthy lived there, or those who had their privately owned vehicles. Consequently foot and horse travel limited the area, and in turn the population, of the pre-railroad cities, or the cities of the early 19th century.

With the coming of the steam railroad conditions rapidly changed. The population of the towns soon increased and congestion was felt within the 3 to 4 mile limit. As soon as this happened cheap horse transit became necessary.

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The horse-bus first, and then the horse-car were evolved in response to this demand. In such manner the first phase of urban transportation was developed. The first street railways were horse railways. The New York & Harlem Line, a horse car line, operated on Fourth Avenue in New York City in 1832, was the first street railway line in the world. From this beginning horse railway transit spread throughout all civilized countries.

Prior to 1873, or during a period of over 40 years, with some minor exceptions, all street railways were operated with horses. The busses and horse cars brought the existing suburbs within the time limit of the business center, or within the one hour ride. In a little while the continued increase in the population required the limits of the cities to be extended. Then it was that there came a most pressing need for a more rapid mode of transit than the bus or horse car.

Now London took the lead. The first urban rapid transit line in the world, an underground steam railroad this time, was constructed and operated in London in 1863, thirty-one years after the first horse railway came into use. But New York was to take the lead a second time. At about this same time, in 1868, the first elevated railroad was operated in New York along Greenwich Street from the Battery to Dey Street. Shortly afterwards, in San Francisco, in 1873, the first cable surface road was placed in service. A few years later, near Berlin, in 1881, the first electric operation came. The electric street railway was first operated in this country in Richmond, in 1888—only 34 years ago. All of these new forms of street railways were the outcome of efforts for better transit in order to supply the needs of the rapidly growing cities.

The electric roads, as soon as they established their practicability, quickly superseded all other forms of surface travel. Their use extended the city transit limit to 10

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or 12 miles from the business center. With such electric railway development, there was no immediate demand for other forms of quick transit except in the case of the very largest cities. The transit facilities in such latter cities had fallen so far behind the requirements that even the electric surface lines could not supply the traffic needs. It was essential that an even more rapid form of locomotion be developed, in order to spread the population still further out. Efforts along these lines have produced the most modern form of rapid transit railroad, namely, electric underground and elevated express lines.

New York for the third time was the pioneer. In 1904 the first rapid transit subway express line was placed in operation. The most important feature of such a railroad is its 4-track main line, over which high-speed 10-car express trains travel past several intermediate stations without stopping, only stopping at express stations—about $1\frac{1}{2}$ miles apart—and thereby are able to attain, underneath the city streets, an average speed of 25 miles per hour. By reason of this express run these trains can reach a distance of 18 miles from the business center within the hour. This form of city transit is the ultimate in the art today.

In 1906 transit history in this country began to repeat itself. We came back to bus operation. But it was a motor bus this time, not a horse bus. The cycle from horse to motor-bus transit had taken 74 years. Although earlier starts had been made in London and possibly in Paris, the first motor bus line in this country was the Fifth Avenue Line in New York. The motor bus is rapidly coming into more general use.

There are now three forms of city transit in common use, the motor-bus, the electric surface car and the electric subway and elevated rapid transit line. The motor-bus and electric surface car can be used effectively in all cities. Only a few of our larger cities require and can afford rapid transit lines.

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NEGLECT OF TRANSIT PLANNING

From a transit standpoint, our cities are planned today very nearly as they were planned 100 years ago when people were living in a man and horse civilization.

Out of the old man and horse towns of a century ago have grown our modern cities today. Those old towns only needed roadways for circulating purposes along which men and horses could travel. The roadways constituted the street system of the town. The function of a street system is to provide for the free and comprehensive circulation of the population. Therefore the streets criss-crossed the town in all directions. They covered the town in a lattice-like fashion. The smallest towns had their street systems just as our villages have today.

As the population of those old early 19th century towns increased, their street systems were extended to cover the larger town area needed. A street system was the only circulating and distributing medium that those old towns required, because the method of travel was always the same; it was chiefly foot travel, with horses for the suburbanites. As the town grew the process continued, the street system was extended again, and then again, and still again, to cover each successive area necessary for the town's development, and each time the new street system diffused the new population over the new area, until the 3 or 4 mile limit of the foot travel town was reached.

At this period, 90 years ago, when cheap horse transit came into use, the street system alone, as it had come down through the ages, no longer sufficed as a medium for circulating and distributing the population. Now a new element entered into town planning. The moving street was evolved. The horse railway was invented. This was a vital element too, but it was not even recognized as a town planning element at all. At that time, when the circulation and distribution of the population depended upon some

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mechanical means for transporting people, then the streets were principally useful as a way along which the new and essential circulating and distributing system could be constructed. The streets themselves at such time, from the standpoint of circulating and distributing the population, were only of secondary value. They circulated and distributed the people locally after the car lines transported them over the major portion of their journey.

If a street system in a small town to properly function as a circulating and distributing medium must practically traverse the town in all directions in a lattice-like fashion, how much more necessary is it that the street railway system—the moving street—when it in turn becomes the chief circulating and distributing medium, should likewise traverse the modern city in all directions in the same lattice-like fashion as the streets—even if they are not as numerous as the streets.

When street railway transit superseded foot transit then the street railway system rather than the street system should have been accepted as the principal circulating medium of the town, and the town should have been planned and constructed accordingly. But this was never done, and is not being done even now. The town authorities in the old days failed to recognize this principle and even today, in our time, those responsible for the planning and development of our cities have not grasped the full significance of this principle and its importance with respect to the comfort, health, happiness and economic welfare of the community.

For this reason, I reiterate that, from a transit standpoint, our modern cities are being planned today very nearly as they were planned a hundred years ago, when people lived in a man and horse civilization.

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THE EFFECT OF PRIVATE OWNERSHIP AND PRIVATE OPERATION

Private ownership and private operation of city transit facilities has prevented the proper development of our modern cities. I say prevented the proper development with emphasis on the word proper, for the reason that all city transit facilities, whether owned and operated privately or not, have helped and always will help to develop a city after a fashion. But private ownership and operation, because of the principles underlying it, produces an unbalanced and undesirable development. It produces the most objectionable features of all great cities. It produces all kinds of congestion—population congestion, housing congestion, business congestion, manufacturing congestion, amusement congestion, and the great bogey of our transit problem, the rush hour congestion.

How does private ownership and operation do so much harm with so much admitted good?—for I believe in giving the devil his due. To find the answer we must begin at the beginning once more. Let us start again with the man and horse town of over 90 years ago. What happened then? As long as foot transit prevailed, the street system alone properly circulated and distributed the population. There was no serious congestion because any new population could easily spread out.

But afterwards, when the 3 or 4 mile town limit was passed, the essential thing was not done. That is, the town authorities, the community representatives, did not cause the street car system, the moving street, to ramify over the old and the new town—over the entire town—in the same manner that the street system does. Instead, the matter was left to private interests. City transit was left to be exploited by private capital as a business proposition. In respect to city transit this was the original sin—it was a sin of omission on the part of the town authorities. It was

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not the fault of the universally but unreasonably cursed corporation, and it occurred in 1832 when the first horse-car line was started in New York.

The natural course for a business man to follow is to develop his property so as to produce as quick a return as possible. He cannot be blamed for doing this. Now what did those old owners of the street car line do, nearly a hundred years ago, when they started out on their new business adventure?—for it was a new adventure in those days. They looked over the city, selected a route which seemed to offer the best prospect. Accidental conditions might have been entirely responsible for its location, but the chief requirement was the possibility of early profit on the investment. It was a case of profits, not service. In other words, some traffic seemed immediately in sight, with a good chance for more to quickly follow. This was the controlling consideration. The essential thing, the question of circulating and distributing the city's population, never entered into anybody's head.

Well, the line was constructed and operation started. Again the natural thing happened. Most people in the city had to walk to and from work at 3 miles an hour. The lucky fellows who got near this new transit line, the moving street, could travel 6 or 8 miles an hour. Of course, as many as could moved near the route. They were attracted, just as a magnet attracts. Just as the iron filings flow to the magnetic lines, so the people swarmed along the new line of travel—along the first horse-car line. What was the result? Congestion, of course. Rush-hour congestion. Then housing congestion and also business congestion all along a single travel route. What happened next? Why, other lines were constructed of course. Did their owners seek another part of the city for a route and endeavor to spread out the population and develop more of the city? Why should they? Mind you, it was a business proposi-

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tion they were dealing with. Would it have been good business? No. There was congestion along the first lines. A new line was needed to relieve it. Why take the time to develop new territory when good business was immediately in sight? The answer was simple. The next line was located as near the first one as practicable. And so history has repeated itself from those old days until now. The policy has always been to delay the facilities and let the population accumulate until the traffic congestion compelled relief, then the new facilities followed. Meanwhile there was plenty of vacant space available in the city for development and plenty of population to comfortably fill it. But, instead of spreading out, the population followed the lines of least resistance and started to spread up. Instead of living and working in one plane, in some of our larger cities we are now doing so in forty planes, and the limit is not yet.

It is by pursuing such policies as have been described, that privately owned and privately operated transit companies, while being an important factor in the growth of our cities, have at the same time produced an unbalanced and disorderly development, and, in consequence, prevented the proper development of our cities, and thereby are chiefly responsible for so many of the objectionable things in our present city life.

WHEN TRANSIT FACILITIES SHOULD BE PROVIDED

City transit should precede the population, not follow the population. This is the fundamental basis of a proper transit development. The principle cannot be emphasized too strongly. Only by utilizing this principle as the guiding policy of future transit development can the existing transit conditions in our cities be cured. This principle of transit development is the reverse of that followed under private ownership and private operation. Expressed in another way, the principle means providing transit service

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for the whole city area, not for the traffic immediately in sight, not for profits primarily.

Providing transit in advance of the population means that when it becomes necessary to open up a new area for the growing population, the transit system and the street system should spread out over the new territory simultaneously, the two systems should expand together. Then the other services, such as water, sewers and light, can follow. But transit is the first essential. With all of the other services mentioned, but without transit, a new city area is almost useless to the community.

Expanding the transit system in this manner, of course, does not mean that there should be street railway lines in every street. But it does mean that a new lattice-like transit system should be superimposed upon all of the old and new street system on an enlarged scale. Instead of through every street, the railway tracks should be located a number of streets apart in each direction, depending upon the character of the transit being considered.

Suppose today an architect planned and constructed a 40-story skyscraper and supplied it with most of the modern conveniences, such as running water, electric lights, sanitary arrangements and ventilation, but did not equip it with elevators before opening it up for public use, but instead only provided stairways from the 1st to the 40th floors, because a generation ago such stairways were all that were necessary in the then existing buildings. How much space do you think would be rented in that building? What would you think of that architect? I will not give your answer out loud. But do you realize that the city fathers who have been responsible for the planning and building of our modern cities might with equal justification be characterized in the same manner? In other words, the way a modern city is built is like building a Woolworth Building without elevators.

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If service instead of profits had been the basis of developing city transit from the beginning, many of the most objectionable features of city life would not exist today. Everybody would be more comfortable, healthier and happier. Our people would not be living so much in layers. Instead, most people would be in their own homes spread out through the open country, thus making living conditions more ideal. We would not be struggling to decentralize our city activities. The distributing process would have been working from the beginning and the population of our cities would already be diffused.

CONVENIENCE OF ACCESS

It may be assumed that a city will be conveniently served if a prospective passenger is not required to walk more than a quarter of a mile—or walk longer than 5 minutes—to reach a surface line, either a motor bus line or a street railway line, routing towards the business center, which is the objective point for most of the traffic. This means that the lines would be about a half a mile apart in the residential districts. For crosstown service, lines one mile apart will conveniently serve the community.

In the case of subway or elevated lines, that is, rapid transit lines, if the lines routing to and from the center are one mile apart, and the crosstown lines are two miles apart, convenient rapid transit service will be afforded the community—every one could reach a rapid transit line within a ten-minute walk. The surface lines and the rapid transit lines would route closer together than described above as they approach the business center, to the extent of traversing every street in extreme cases.

EXTENT OF THE FACILITIES IN ROUTE MILES

It is difficult to establish an exact standard for the amount of route mileage that a city should be supplied with in order that it may be adequately served with transit

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facilities. But the relation of the route mileage to the area served is considered a reasonable basis upon which to formulate an approximate standard.

Water transportation was the first connecting link between cities. On this account each city originated at some point on a water-front. As the city grew, this point of origin became the business center, the local point of all the city activities. Around the business center, the city develops away from the water and along the lines of least resistance, but generally in a roughly semi-circular form of irregular outline. A study of most of the larger cities indicates that they conform closely to the semi-circular shape and can be included within a 6 mile radius. For this reason an analysis of the route mileage standard can be based on a theoretically semi-circular city. Such a semi-circular city of one mile radius contains an area of approximately 1,000 acres, and the area increases as the square of the radius; so, squaring the radius in miles and multiplying by 1,000 will produce the approximate acreage of any semi-circular city.

Upon the foregoing basis, that is, surface lines one-half mile apart and rapid transit lines one mile apart, it would require approximately one mile of motor-bus or street railway line, or route, for every 200 acres of city area. In the case of a single track, with the average sidings, this would reduce to one mile of single track for every 180 acres; or in the case of a double-track line (neglecting yards, etc.), one mile of track for every 100 acres. Usually the acreage served by 1 mile of track should be between these limits.

For rapid transit lines the corresponding standards are: 1 mile of rapid transit route for every 400 acres of city area, and 1 mile of rapid transit track for every 200 acres of city area, assuming a 2-track line.

The foregoing standards represent convenient service. Such standards are applicable to cities generally, from the smallest to the largest, except the very largest and most

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densely populated communities. There comes a time in the case of such very large cities when capacity rather than convenience determines the proximity of the lines. When a city gets into this class it must be treated individually.

THE NUMBER OF ROUTES REQUIRED

The next important factor is the routing of the transit lines, or number of routes. By a route is meant a continuous line, either from the business center to the outer limits of the city, or crosstown (or circumferentially) from one side to the other of the city. In the former case, such a line would serve a strip of territory half a mile wide for a motor-bus or surface line and one mile wide for a rapid transit line, and would connect the residential section traversed directly with the business center; in the latter case, a cross-town strip a mile or two miles in width would be served, by surface and rapid transit lines respectively, thereby conveniently connecting every part of the city with every other part, with one or two transfers.

The number of routes is another measure of the accessibility or convenience of the service. The theoretically semi-circular city again will be used as the basis for determining the standard. For motor bus lines and surface car lines the number of routes can be obtained approximately by extracting the square root of the city acreage and dividing by 6.3. For rapid transit lines, the square root of the city acreage divided by 12.6 will give the number of routes approximately.

The routes should be distributed throughout the city so as to furnish the same character of service to all sections. The up and downtown routes should be as direct as possible. Their function is to provide quick transportation between home and work. As far as practicable, up and down town routes serving opposite sides of the city should traverse the business center crosstown-wise through the same street. In this way one pair of tracks in the congested

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area would accommodate two pairs serving opposite residential sections; that is, for every four outlying tracks only two tracks would be required through the business center. In the morning and at night both such tracks would be utilized by loaded cars, with workward-bound passengers in the morning and homeward-bound passengers at night. This constitutes the development of a two-way traffic through the business center and consequently is the most economical use of the streets within the congested area.

Ideally arranged, the central pair of up and down routes would penetrate farthest downtown, across all of the cross-wise business streets, except the one nearest the waterfront, which would be traversed by the crosstown connection for two-way traffic above described. Thus the movement of the cars would be along a U-shaped route—downtown on one side, across town through the business center and then uptown on the other side. The pair of routes next removed and on either side of the central pair would continue downtown as before across all of the cross-wise streets to next to the last one. The cars again would move in a U-shaped route, but in this case the U would be wider than the previous one. The crosstown portion of this U route would intersect both of the up and down lines of the central U route at two transfer points. In the same way each pair next removed would continue downtown for one less street, and, with the crosstown connection form another U route, each succeeding U being wider than the one before, and also intersecting all of the up and down lines of the preceding pairs, each intersection being a transfer point. With this route arrangement a passenger could reach almost any point in the business section by one transfer from his own up and down line.

The crosstown lines are for a different purpose. They will be used by transfer passengers chiefly. They should run directly across town and thus intersect all up and down lines. Their function is to articulate the entire railway

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system. By means of them a passenger will be able to reach any point in the city from any other point.

The standards herein submitted for route mileage and routing enable the approximate requirements of a particular city to be ascertained. It must not be assumed, however, that such standards are scientifically exact. The character of the problem precludes such precision. On the other hand, the standards do permit of a certain degree of scientific analysis which is sufficiently exact to serve all necessary purposes. The standards do not take into account the financial aspects of the problem. Adequacy and convenience of service should be of the first consideration. Financial questions should be secondary. This should be the city's viewpoint, at least to the extent of enabling it to know its transportation needs. When it comes to supplying the facilities, the problem, of course, must be dealt with from the standpoint of the financial ability of the city.

The more or less ideal route arrangement described has not been completely developed anywhere. It merely represents a standard to strive for. Without a standard which approaches the ideal, nothing worth while can ever be accomplished. This applies to municipal transportation as well as to any other human activity.

NECESSITY FOR MUNICIPAL OWNERSHIP

Municipal ownership is essential if city transit facilities are to be developed and utilized in the best public interest. Of course, this means municipal ownership with proper planning. Municipal ownership and municipal operation are two separate and distinct things. Do not confuse them. We can have municipal ownership without having municipal operation. We are ready for municipal ownership now, but we are not yet ready for municipal operation; the price is too high. That remains for the future in the natural process of evolution.

In preparing for the extension of any city, the streets

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should be laid out, graded, sewerred, water supplied and paved beforehand in order to induce the population to follow. These things are all appurtenances of a street system and are recognized municipal functions. We should not wait for the population to accumulate and then build the streets and their appurtenances. But transit lines are really moving streets, or at least they are street appurtenances. Therefore it is even more important that we should not wait for the population to accumulate before constructing the necessary transit lines. Yet, this is the policy the operating companies would have us adopt in the case of transit lines when they own and control them. They are averse to developing new territory. The traffic returns from such territory would be too lean. They are after the fat only. They contend that municipal transportation should not be furnished to a community until there is a population ready to be served. They insist that it is better to follow old lines of travel than to create new ones. They would parallel already congested lines by new facilities, instead of deflecting the new facilities into undeveloped territory.

From the viewpoint of the operating companies, with profits the primary consideration, the correctness of the principles just described cannot be disputed. Such principles have served as the guiding policy in the past, and have produced the transit conditions which now prevail. If the same principles are to control in the future, then the present transit conditions will be the public's portion for all time in our cities.

The transit facilities required in our largest cities today to properly accommodate the public not only include the rapid transit lines, but they also include the surface car lines and the bus lines. All of these facilities are a necessary and desirable part of the transit program.

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Each type of facility has its proper function to perform in the transit plan. Where a city is large enough to require rapid transit lines, they should constitute the main arteries of the transit system. But to depend entirely upon rapid transit lines to serve the whole city would mean an inordinate expenditure of money. The areas in between the rapid transit lines should be served by surface cars and busses, which should shuttle back and forth between the main lines, the rapid transit lines in the morning collecting the traffic and delivering it to the rapid transit lines for transportation to the center; at night receiving the traffic brought out by the rapid transit lines and distributing it to the homes in the sparsely settled areas. In this way the intermediate territory will be developed to the point where it can support the larger expenditure required for a rapid transit line. When the development has reached the point where the lesser facilities and the existing rapid transit facilities are not able to supply all of the transportation required, then the territory served by the feeder lines, the lesser transit lines, can be opened up with a new rapid transit line. The new rapid transit line would thus serve the territory which had already been partially developed by the lesser facilities. The rapid transit line, therefore, at the outset would have a larger traffic return. There would be fewer lean years to wait for the territory to develop.

It is not only necessary that additional transit facilities should be under construction continually in order to keep pace with tremendous traffic growth, but all of these various lines of transit should be disposed throughout the city in such a manner as would best conserve the public welfare. The extent, location and distribution and general character are all of vital importance to the community. All of these features must be viewed and decided upon from the public standpoint. The operating company's viewpoint is of secondary importance.

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Therefore, to best serve the public, all of the transit elements that the size of the particular city makes necessary in its transit plan, including rapid transit lines if they are required, surface lines and the busses, must all be utilized and to be utilized most effectively they must all be consolidated under a single ownership and control. The municipality should own and control them all.

CONSOLIDATED OPERATION

Everybody should be served alike with transit facilities wherever he may work and wherever he may live. Therefore, everybody should be able to utilize all the facilities necessary to carry him from his home to his work for a single fare—either bus lines, surface car lines, or rapid transit lines, separately or in combination. This end can only be attained under a system of universal transfer, and under a system which utilizes all of the facilities coordinated under a general plan. A single operating company can best perform this service. Therefore, monopoly of operation is desirable.

As between municipal operation and private operation, there can only be one answer, as I can see it. The public cannot yet perform any function as cheaply as a private company can do so. Public employees cannot be held under the same strict discipline that can be exercised over private employees. Under present political conditions, it would be impossible to keep municipal operation free from political dictation and domination. At the present state of civil development, municipal operation to me is unthinkable. The only alternative is private operation under public control, a control aimed to insure a service for the whole public that is convenient, adequate and safe.

The most desirable things to be achieved in transit development in the public interest, such as new facilities when needed, of a suitable type, and properly distributed

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throughout the city, can all be satisfactorily accomplished under municipal ownership without resort to municipal operation.

CONCLUSION

If city transit is based on serving the public, not on profits;

If city transit precedes the population—does not follow the population;

If everyone can reach a transit line within a quarter of a mile walk;

If the city has one mile of street railroad for every 200 acres;

If municipal ownership is substituted for private ownership;

If consolidated operation by a private company under public control prevail, then:

Congestion of population will be dissipated, not intensified.

The population will be distributed to the outmost limits of the city, not confined to population centers.

The city's growth will be promoted, not retarded.

The outlying sections of the city will be developed and enhanced in value.

Universal transfer privileges can be established so that all passengers may ride between their homes and business for a single fare.

The intolerable rush hour conditions will be eliminated. Every passenger will be able to travel to business in the morning and home at night comfortably and decently.

The city transit facilities will serve the whole public alike.

In short, city transit is a social problem, not a business one. From a profit-getting standpoint, the interests of the public and the railroads are conflicting. They can never

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be reconciled. If past efforts may be taken as a criterion, under the old order of things the transit problem never can be solved. Under a new order of things a solution can be found. If city transit is developed along social lines instead of along corporation lines, the best interests of the whole community—the public's as well as the railroads'—will be served.

DISCUSSION

HARLAND BARTHOLOMEW, *St. Louis.*

Mr. Goodrich's paper is a most interesting study of a field wherein much effective work can still be done. My experience leads me to concur in the figures he has used for ultimate traffic capacity of streets of different widths. Our experience in St. Louis has shown somewhat greater capacity for maximum hours so well as for ten hour days than the figures he uses.

For at least eight years an annual traffic count has been made of all streets in the business district and approaches thereto as far west as and including Grand Avenue, our principal cross town street. The information thus secured is platted and forms an invaluable source of information for studying street capacities, changing conditions, pavement wear, etc. It was on the basis of information of this character that our Major Street Plan was drawn. Already certain streets have been opened and the effect upon the traffic movement is most marked. The study is particularly interesting inasmuch as our automobile traffic has been increasing tremendously; whereas in 1916 there were only approximately 15,000 licensed vehicles, there are approximately 75,000 in 1922, or virtually one automobile for every ten persons. As traffic increased we found that certain streets reached their capacity and new traffic sought other routes, and as new openings were made they rapidly absorbed the increase of travel and

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themselves soon reached their capacity, when the increasing overflow then again sought new routes; meanwhile, the former old routes maintained their maximum capacities.

Locust Street, the former principal approach street to the business district from the west, 66 feet wide, having a 36 foot roadway, reached its apparent maximum capacity about 1916 when it carried approximately 2,000 vehicles per hour. Mr. Goodrich's table shows but 1,200 vehicles for a street of this width where no car line exists.

We can think of the accomodation of increasing vehicular traffic in cities much as a problem of excessive flood water wherein the surplus will find channels which are least obstructed, or we may think of it as punching a balloon; where it is restricted in one place expansion will occur elsewhere.

Since 1916 when Locust Street reached its capacity, the parallel thoroughfare two blocks south, Pine Street, first began to absorb the overflow. Pine Street continued to increase in traffic until Washington Avenue, a parallel thoroughfare to Locust and one block to the north, was opened and widened, when Pine Street traffic decreased until Washington began to carry a considerable volume, when Pine Street again began to show an increase in traffic.

Later South Twelfth Street was opened and we again noticed a decrease in Pine Street traffic, for much traffic which formerly detoured in order to find a better approach to the business district via Pine Street, was then able to reach the business district much more conveniently through the South Twelfth Street opening. This South Twelfth Street, which is an entire new opening is today the second heaviest traffic point in St. Louis.

One thing which Mr. Goodrich failed to consider that I should like to have seen him discuss, was the question of the effect of the future decentralization of business upon traffic movement. I think it is wrong to assume that the

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growth of the Springfield district will result in so great a centralization of business as to demand seventeen wide thoroughfares approaching it. Admitting that the Springfield district may grow as predicted, it is more logical to assume that a very considerable amount of the increase in commercial development will decentralize itself into various centers, thus decentralizing traffic. This is a modern tendency as illustrated by the chain store.

I differ with Mr. Goodrich's theory that cities of given population distribute themselves according to any law. His studies of the distribution in cities of different size in England could not result in the creation of a law which would be applicable to the United States, for England is but a small country and represents an area with similar climatic conditions and no such great variations as might be found in the United States. Compare for instance the climatic and geological condition of New England with that of Arizona; natural resources, agricultural area, trade routes and other considerations will vary to such an extent that no law will probably be developed.

MR. BASSETT.

The two excellent papers which we have heard show that both the street layout and street car transportation must be related to distribution of population and prevention of congestion.

I must express myself as in agreement with Mr. Turner's paper in its fundamentals but I wish he had the time to take up the additional subject, How can we so locate our rapid transit lines that they may be best adapted to the growth of modern cities? What is rapid transit? It is city transit by subway or elevated, by depressed road or embanked road. It is simply that form of the city transit which has fixed stopping places and does not interfere with vehicular or foot traffic because it is not on the street level. A city must prepare for rapid transit. Many cities, when they have reached 100,000 or 200,000

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population overlook the fact that they are destined to grow to a point where rapid transit will be needed. When a city has a population of 700,000 or more, rapid transit becomes a necessity because the time of travel from the center to the growing periphery of the city becomes greater than men can afford out of their working day if they use surface cars. Most cities give no thought to rapid transit until they need it, and then they find that their street layout is not adapted to it. In New York, millions of dollars have been spent for private land for subways that could have been saved if the street layout had been planned with greater foresight.

As Mr. Turner said, the first rapid transit line should be from the outside population through the business center to the outside population on the other side. This allows a pendulum movement of trains and prevents dead end terminals which are always the main points of congestion. The second line should be at a right angle to the first. The intersection makes a point of congestion which cannot be avoided.

The elevated loop method, which has been practised in Chicago, is probably harmful. Business cannot expand outside of the area within the loop. Rapid transit, if not wisely planned, is apt to bring congestion instead of preventing it.

After the first two lines at a right angle are built in a round city, the following lines should not go through the center made by the first two lines, but following the form of parabolas should help to spread out the center.

A schematic plan might be shown by drawing two intersecting lines one north and south and the other east and west. East of the intersection parabolic lines would cross the original east and west line radiating to the suburbs north, east, and southeast. Similarly, west of the intersection parabolic lines would radiate northwest and southwest.

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ROBERT M. YEOMANS, *Toronto, Canada.*

I wish to pay tribute to the excellent address of Mr. Goodrich. I am not an engineer so cannot be expected to understand all his engineering references, especially when he refers to calculus, but I did understand and appreciate the non-technical parts.

Referring to Mr. Turner's paper, there is one statement with which I do not agree. "We are now ready for public ownership, but not for public operation."

The City of Toronto has completely answered his statement by the publicly owned utilities we operate at a profit. Toronto owns its own waterworks, and is assured at all times of a safe and abundant supply at cost.

We are particularly proud of our Hydro Electric light and power system, owned by the people and operated by a Commission. Electric light bills for the average six room home in Toronto are \$1.00 per month. This refutes the statement that municipal ownership does not pay.

Then there is our harbor; it too, was a problem. Our water front was just as bad as Springfield's. Privately owned land dotted here and there all along, and railway tracks six and eight deep ten miles in length. We created a Harbor Commission and now 99% of the land is in the hands of our citizens, and we hope the day is not far distant when all railway lines along the water will be elevated, and safe level crossings to our docks provided. The Commission have created industrial land which is leased to factories. You can lease land where factories may receive raw material and ship finished products from their own docks.

Regarding our street railway, we have taken it over from a private company which held the franchise for 30 years and which refused to give us service. Now we are running it as a municipally owned system and spending more than twenty million dollars in rehabilitation.

We have our municipally owned and operated water

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works, electric light plant, our transportation system and they do give us better service than we had under private ownership, and, better than that, they are self supporting receiving no bonus or exemption from taxes.

We are ready for municipal ownership and also for municipal operation.

MR. TURNER.

Mr. Yeomans forgets that the citizens are taxed to pay for these.

C. H. CHENEY, *Los Angeles*.

Mr. Turner is probably familiar with San Francisco. The service is very good and the economy is better.

MR. TURNER.

San Francisco is operating a street car line efficiently. They, however, picked out a good paying and well-equipped railroad and bought it.

G. H. GRAY, *New Haven, Conn.*

I assume Mr. Goodrich's predictions as to population are based on past experience. We should not lose sight of the possibility of very different conditions in the future. Up to the present time the use of the land within our blocks has been beyond scientific control through the fact of its subdivision into a great number of small lots, each under separate ownership.

All of the points so far have been dealing with land to the extent to which it has been zoned by the city. We have not taken up the question of the scientific handling of that portion of the city which lies within the block, for which fundamentally the city exists. To illustrate what I have in mind; there was held recently a competition for rebuilding the most congested tenement house block in New York City. A very complete survey was made of that block, indicating just how the population was distributed, the number and size of the families and the general living

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conditions, etc. I made a study of that block and found that with model tenements we could increase the population by 50% and with that increase provide a large playground to take care of the children. Therefore, even in slum districts which we now consider over-crowded, we must recognize the possibility of an increase of population greater than our past experience has recognized. The person who sub-divides for efficient use of the land must have the entire block to work with. Our cities are in a hodge-podge condition because the blocks are cut up into too small units for scientific development. Some organization must take up as a most vital thing the handling of that land within the building lines of the city block.

E. A. FISHER, *Rochester, N. Y.*

I had occasion to examine a paper predicting the increase in population made sometime ago by engineers for the city of Rochester. We have not gotten within 20 years of the figures they made.

I am also very much interested in the paper by Mr. Turner. I believe thoroughly in the proposition that the city ought to own these facilities, and I also agree with him that at the present time they must be operated privately.

DR. HERMAN E. PEASE, *Kansas City, Mo.*

I want to give one angle of the transportation problem that appeals to me and am very much surprised that it has not come up before. It seems to me it should aim to preserve well, live people, and not make dead ones. There are too many people being killed by traffic accidents. Our street planning should aim to prevent this. Formerly our skull fracture cases came from people in the working years of life, twenty to forty; men falling from buildings, but today they come in large numbers from children and old people struck down by automobiles.

On the thirtieth day of May we paid our tribute to the fifty thousand killed in the late war. We paid no tribute

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to the ninety-two thousand killed on the traffic ways of our cities last year—killed getting to work and school by means of our street car service. From wherever men in their wisdom have placed traffic lines, there come the dead and mangled. They must pass though the automobile traffic to reach the street car. I would like to see our great traffic ways separated from our street car lines. These should be made as safe as possible for the boys and girls who must get from the cars to the sidewalk and who must dodge the big trucks. Broaden the streets as much as we can but do not encourage both automobile and street car to use the same street. It is productive of too many deaths.

W. P. BOLAND, *Scranton, Pennsylvania.*

If the question of public ownership of railroads be a debatable one, as some of you gentlemen here appear to believe, there is certainly no place within this great land of ours where the evils of private ownership can offer such an armory of arguments as this very heart of New England itself.

My friend, Mr. Turner, has painted for you a lurid picture of the evils that might ensue if a great railroad system should fall into the foul hands of corrupt politicians. But he did not have to draw upon his magnificently gifted imagination to depict the things that might have been, in order to present a panorama of wreck and ruin caused by unrighteous men. Nothing within the reaches of his vivid fancy could measure up to the actualities resulting from the private management of the New York, New Haven and Hartford Railroad.

Here was a road regarded by all as the best managed property upon this continent. The best banks in Boston and New York gladly accepted its stock for collateral loans that ran into millions practically as readily as if made upon government bonds. Courts approved of investments in its

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stock made with the money of widows and orphans, and many a man died in peace in the consciousness that he had left his dear ones provided for by his investments in this gilt-edged "security!" Yet, over night the stock of the New York, New Haven & Hartford fell from 285 to less than 13. Entire estates were wiped out; vast fortunes were swept away. Banks and hearts were broken, and the numbers who perished by suicide and despair from the terrific shock of the mighty fallen will never be told. This was the ripe and blood-red fruit of private ownership of public utilities.

Contrast this sort of management with the public management of the U. S. post office and our efficiently functioning parcel post system. In spite of the unfair attacks upon the parcel post made by private interests that would destroy it to their own gain, it continues to function, rendering an invaluable service to millions that no private management could perform, a monument of efficiency and economy for every public and private enterprise.

I deny that the corrupt politicians could get control of the management of public utilities. I have faith enough in the honesty and the good horse sense of my fellow Americans to believe that they would no more tolerate gross dishonesty in the management of the railroads than they do in the control of the post office. I have such faith in the solidity of our American democracy to believe that the American people would not knowingly put a crowd of crooks in power, or that they would soberly turn over their public business to post-graduates of Sing Sing.

I believe that under public management the Truesdales and the Underwoods would find their places as they do under private ownership. I believe that under government ownership the evils that follow in the wake of watered stocks and the capitalization of public franchises gotten gratis could never occur. I need not tell you of the actual physical cost of railroads and equipment which has

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put burdens upon the backs of the public and places ruinous railroad rates like barricades against the domestic commerce of the nation. It is the effort of dishonest railroad management to produce dividends upon stock issues far in excess of the physical values of the properties that is the greatest drag on our national progress.

F. L. OLMSTED, *Brookline, Mass.*

I want to call attention again to Mr. Turner's parallel between the community's rapid transit facilities and the elevator service in large buildings. It brings out very clearly the point he was especially making—that the rapid transit mechanism, likewise the elevator mechanism, must be arranged, designed, built and operated for the best service of the whole unit.

There is another point, however, which he did not bring out. The parallel would be closer between the building built without the elevator and the city that grows without provision for transit. If we imagine a building started without provision for elevators above the 4th story, and then an attempt to install them afterwards, the result would be that the upper stories would never be built, and the population that would have gone into those upper stories would go over into other four and six story buildings adjacent to it. In other words, it would be handled in smaller units distributed side by side.

So in communities, whether people are to come together in smaller units, with their work distributed over those units, or are to come together in large groups, is a matter to be considered.

Take the population of possibly thirty-seven millions centering around New York. The trend may be in one or two directions, one, in which the great majority of people move long distances back and forward from their work all the time, or in which the people move small distances from their work, since the nature of their work may be such that it can be carried out in small units.

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INTRODUCTION

LAWSON PURDY

President of the Conference

Rather against my own convictions, when I attempted to do some zoning work in New York, I eliminated the word "beautiful" from my vocabulary. At that time the people were very much afraid of making the city beautiful. They thought they must make it very expensive without making it beautiful.

The more I have studied city planning and zoning the more I have become convinced that beauty is an inevitable by-product of a good city plan and the wise use of a zoning plan.

If a city is properly planned and properly zoned it will be evidenced by the value of the land, as the value of land is one of the results of beauty. Beauty has a financial worth. Every one of you will pay more for a home if you regard the home itself and the view from it as beautiful. The more you become educated to the idea, the more you will be shocked with the ugliness of those things in a city which detract from the comfort and well-being of human lives.

THE PLACE OF THE BEAUTIFUL IN THE CITY PLAN SOME EVERYDAY EXAMPLES

JOHN NOLEN

Town and City Planner, Cambridge, Mass.

The main conclusions at which this address aims are:

1. That American towns and cities, if they are to fulfill their purposes satisfactorily, must be beautiful.
2. That towns and cities cannot be beautiful without a city plan.

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3. That the actual beauty is achieved largely through works of architecture, landscape architecture, sculpture and engineering, but in locations and under conditions that can only be made possible by a city plan.

4. That it pays to provide for the beautiful in the city plan.

What is the test of Beauty? In an address on this subject before the Phi Beta Kappa Society at Harvard University delivered a year ago, Ralph Adams Cram said, "Bring up to the Courts of Beauty any one of the things that offend us today, no matter what this may be, and abide by the verdict rendered. For the sake of impersonality let it be a modern city, anything, from Somerville to Chicago, and what has beauty to say in the premises? Before beauty's austere regard the bold pleading of business efficiency, of plausible economic law, of material progress, of a mechanistic philosophy of evolution—of Modernism, in a word—falls thin and unconvincing. Dead cities rise up before us in vision, cities now marred and degraded yet beautiful still in their delicate vestiges: Venice and Palermo, Le Puy and Carcassonne, Rothenbourg and Prague, Bruges and Hildesheim, Oxford and Winchester—and with them beauty calls on us to match Leeds and Birmingham and Essen and Pittsburgh and St. Louis, or as a matter of fact any other city in either hemisphere created or dominated by industrial civilization. Is the change worth the price, is the criticism lightly to be cast aside as sentimental or effeminate?

The implied condemnation is a just condemnation. Nothing can be valid that has this degree of sordid and self-satisfied ugliness. We were meant to live in beauty, to cherish it and to create it, and a civilization that functions in the hideous and uncouth is a civilization of the wrong shape, whatever the testimony of the bank and the clearing-house, and imposing statistics as to the balance of trade."

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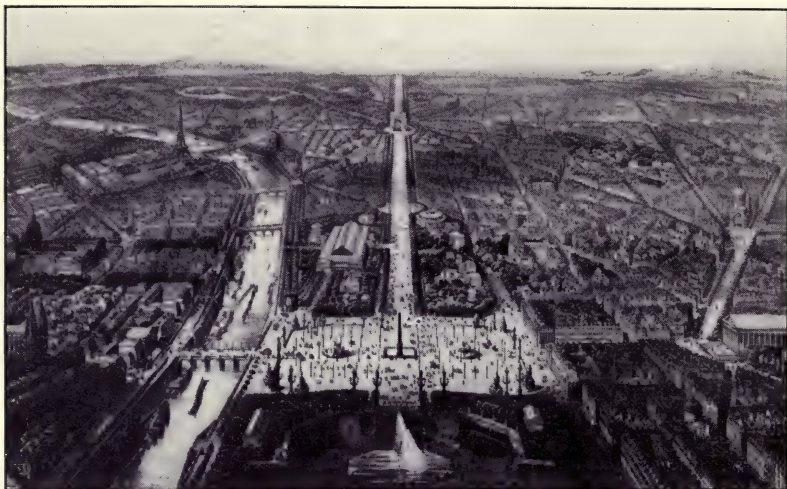
It might as well be confessed at the start that many of those interested in city planning are afraid of the discussion of "the beautiful" in connection with the city plan. If I am not mistaken this National Conference on City Planning, now holding its fourteenth annual meeting, has so far never ventured to put upon its program any topic bearing directly upon the beauty of the city as a whole. The reasons for this fear are three. First, an unfortunate tradition from an earlier day of "The City Beautiful" which meant little more in the United States than the planting of geraniums or other almost equally superficial means of embellishment or adornment. A second reason is the belief, more widespread than it seems possible that it could be, that the beautiful is opposed to the practical and the useful, or at best is something unnecessary and extravagant. And finally, that the backing considered most indispensable for the success of city planning, namely, the so-called business interests and the men who control city governments, are either antagonistic to the beautiful in cities or at best don't care about it. These reasons are now, I believe, without solid foundation. It can be demonstrated—in fact, I think we can demonstrate it here this evening—that there is no complete realization of what is practical in cities without due regard for design in the city plan. And furthermore, that business men, politicians, city officials and the rest of the class known as "practical men" show by their daily life in matters of food, clothing, homes and recreation, in factories, stores, hotels, clubs and their whole environment, that one of the things that they care most about and for which they work most industriously and spend money most liberally is the beautiful. Really this idea needs no further support than that involved in the phrase "If eyes were made for seeing, then beauty is its own excuse for being."

The author of "Education and the Larger Life" has put it well in this paragraph: "We care for perfection in our

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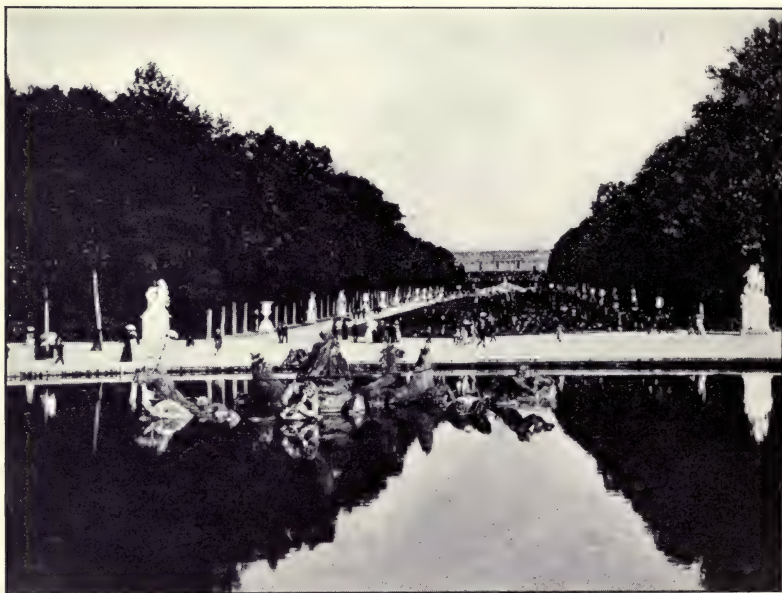
ideal pursuits—in art, in literature, in music—and we admit that we care. We want the greatest possible charm and delight and beauty and excellence and power. Sculpture creates strong-limbed men and noble women and beautiful children, people of power. Architecture works for subtle proportion and fine suitableness, for the things of excellence. Painting makes permanent the magnificent color and pure line of our dreams of beauty. Literature has for its avowed purpose the production of those perfect art forms and that rich imagery and that genuine emotion which constitute human delight. And, finally, music realizes its high office in speaking most directly and most touchingly to the human spirit. Now, these are not idle words. They are not pretty playthings for the imagination to dwell upon and then pass on to the solemn affairs of trade and business. On the contrary, they represent that more permanent achievement by which the men of a later time judge whether the age has been worthy or unworthy. It is the record of the best that we have thought and done. This wealth is human. It consists of beautiful men and beautiful women and beautiful children. The practical concern of life is with human charm and human delight and human beauty and human excellence and human power.”

Underlying the question of this evening's discussion, namely, “The Place of the Beautiful in the City Plan,” is the broader question of the place of the beautiful in the city. No one doubts seriously that things of beauty have a place in towns and cities. For example, there is first of all what may be termed the natural beauty of cities,—their rivers, lakes, ocean fronts, their hills and mountains, their fields and marshes, their high places with commanding views of various types of outdoor scenery, their woods and vegetation. Cities quite generally secure these natural features and conserve them, primarily because they are beautiful. It is true that such lands and outlooks contribute to the



PANORAMA OF PARIS FROM ARC DE TRIOMPHE

No better illustration than the Panorama of Paris could be found of the way in which broad city planning provides not only for convenience but also for the beautiful in the city plan. The advantages and attractions of right location and arrangement are everywhere evident in this illustration of the great ground plan of Paris.



BASIN OF APOLLO, VERSAILLES

A good formal vista carried out with perfection, except, perhaps, the elevation of the Palace itself, which some critics consider squatty.

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health and active or quiet recreation, and are in some instances directly useful; as, for example, river valleys in connection with the surface drainage problems of cities and the regions surrounding cities. But the expense of acquiring these natural features and their maintenance, and their interference with other municipal requirements, are only justified by the contribution which these natural features make to the beauty of the city, and the opportunities they afford to enjoy that beauty.

Then, there is the beauty created by the works of man. Of course, the beautiful in the parks and open spaces and even in the wild reservations of cities is largely the work of man, too, and represents design and intention and skill of a high order on the part of landscape architects. For convenience in discussion, however, natural forms of beauty may be classed separately from buildings and architecture of various kinds, such as city halls, libraries, schools and other public buildings or private buildings for all the purposes of business, industry and residence, as well as bridges, viaducts, monuments, etc. Here again no one seriously questions that these buildings and other constructions should be beautiful. The only inquiry to be made is the form of expression that the aesthetic element should appropriately take. Then, if we consider monuments, memorials, sculpture, etc., it becomes even more evident that the beautiful not only has a place in such works of civic art, but, like the parks and natural features, it is the main purpose and justification.

But parks and open spaces, city halls, libraries, schools and other public buildings, also private buildings for residences, business and industry, and all the other constructions that might readily be named, are not the city plan. They may exist without any city plan, if by city plan we mean a deliberate design and arrangement of the city as a whole, or a redesign of the same. As a matter of fact, in American cities these various constructions do usually

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exist without any real city plan, and it may be added that notwithstanding the merit and beauty of many of these constructions architecturally, considered one by one, American cities, as cities, are almost invariably ugly.

What, then, is "The Place of the Beautiful in the City Plan?" Or, as the subject was first stated by the Committee, the achievement of beauty through the technique of city planning? The answer, it seems to me, is quite simple. It is the city plan that makes the beautiful incities possible. Except as a diagram may be considered interesting or beautiful, looked at as a design on paper, or as the city plan as a whole might appear beautiful because of its recognizable order and symmetry and logically good arrangement as viewed from an airplane, the city plan in itself is not beautiful at all. Nevertheless it is the city plan, and the city plan alone that makes the beautiful in cities possible. This is repeated, for it is the crux of the whole matter. I venture boldly to assert that there can be no such thing as a beautiful city without a city plan conceived and executed not only so as to serve all the practical requirements of a city, but also to provide abundant opportunities for the proper expression of the beautiful. It is true that the beautiful in cities comes actually through the works of landscape architecture, architecture, sculpture and engineering, but the point of greatest importance to note is that the city plan provides the location and arrangement, the elevation or gradient, the foreground and background, the vistas, balance and symmetry, the street scenes; it provides a proper sense of scale, the broad relationships, the environment, and the opportunity for the grouping, assembling and composition of such works under conditions that make them truly and permanently beautiful.

"In paying tribute to the architect," wrote W. Hamilton Gibson years ago in praising the Chicago Exhibition, "we perhaps unconsciously credited him with more than his due; certainly more than he would himself claim. Of what





L'AVENUE DE L'OPERA, PARIS

A splendid example of the formal vista logically and beautifully executed. Although American cities are usually laid out with straight streets they generally lack a good terminal treatment of such streets. Washington, D. C. is an exception. New York, on the other hand, is a city with many long, straight, wide streets, with scarcely any good vistas in a city planning sense.



HIGH STREET, OXFORD

One of the very best examples of curved streets affording convenience and beauty and informal vistas. The composition is constantly changing as one progresses along the street.

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avail were beautiful palaces if they could not be seen; and how easily might such an assemblage of heroic structures such as these at Jackson Park (as in previous similar expositions) have been so disposed, with relation to each other and their environment, as to have completely lost not only their individual impressiveness but the infinite advantage of their imposing ensemble.

"We traverse the winding lagoon for an hour in continual delight, every passing moment, every quiet turn of our launch or gondola beneath arching bridge or jutting revetment opening up in either direction new and ravishing vistas of architectural beauty. Yet how little have we considered that the very means of our enjoyment, the pure blue water-way upon which our gondola so listlessly floats, is the crowning artifice by which the work of the architect is glorified—a very triumph and inspiration in the great scheme of landscape gardening, which has made this Columbian Fair a unique model for all others of its kind. I think it is conceded by the architects of the Fair that in no way are its buildings to be seen to such satisfaction or full effect as from the lagoon. And it is well to remember, if only as an instructive object lesson, as we glide upon this liquid street, how much of our present enjoyment is due to the forethought of a supreme design, which, even before a single foundation wall was laid, had taken into account the most effective grouping of the architectural features." And as we may have works of engineering, architecture and landscape architecture that are beautiful in themselves and not have a beautiful city, so we may have a skillful city plan that will meet all the requirements, practical and aesthetic, of a city plan as such, and yet not have a beautiful city, because of the failure of the various arts and professions named to create constructions of beauty in the places and under the conditions which the city plan provides. In other words, the beautiful in cities is dependent upon the city planner to meet the full require-

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ments of a city plan, including the opportunity for sculptors, architects, landscape architects, engineers and others to carry out their constructions so that they are not only useful and beautiful in themselves, but also so that they contribute toward the total beauty, the ensemble, which it is the intention of the city plan to create.

rations of cities. Of course these various works and connections in connection with city planning has, as a matter of fact, nothing whatever to do with city planning. This point of view is indicated by such ideas as pink bows on lamp posts. It is usually associated with the more superficial elements and excrescences of architecture, engineering, street furnishing, gardening, etc. Again let me repeat, this criticism has nothing whatever to do with "The Place of the Beautiful in the City Plan." In so far as it is valid at all, it applies only to the various minor constructions and decorations of cities. Of course these various works and constructions should have their own appropriate appearance and beauty, and should be designed in good taste for their various purposes. But in any case they are not the city plan, and ordinarily do not have anything to do with the planning part of building cities.

Sir Henry Wotton in his "Elements of Architecture" says, "Well-building hath three conditions: commodity, firmness and delight." From this phrase of an English humanist a theory of architecture or of city planning may be profitably discussed. Architecture requires firmness. By this necessity it stands related to science and to the standards of science. Architecture also requires commodity. It is not enough that it should possess its own internal coherence. It has come into existence to satisfy an external human need. It is subservient to the general uses of mankind. It is social in its service. And, finally, architecture requires delight. For this reason, interwoven with practical needs and their mechanical solution, we may trace in architecture a third and different factor—the desire for beauty. No

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better expression of the same idea applied to city planning has yet been made than that of Frederick Law Olmsted in his introductory address on city planning at the National Conference on City Planning twelve years ago, in which he says: "The demands of beauty are in large measure identical with those of efficiency and economy, and differ merely in demanding a closer approach to practical perfection in the adaptation of means to ends than is required to meet the merely economic standard. So far as the demands of beauty can be distinguished from those of economy, the kind of beauty most to be sought in the planning of cities is that which results from seizing instinctively with a keen and sensitive appreciation the limitless opportunities which present themselves, in the course of the most rigorously practical solution of any problem, for a choice between decisions of substantially equal economic merit but of widely differing aesthetic quality."

At a meeting held less than a month ago publicly to inaugurate under the auspices of the Sage Foundation the "Plan for New York and its Environs," the Honorable Elihu Root said many significant things about city planning, from which now only one striking arraignment of New York's gridiron of streets can be given.

"Did it ever occur to you that in the City of New York we never approach anything that is beautiful and noble? We are always going by such things. There are many great and noble buildings, noble works of art, but we are always passing by them. You have to turn your head to see them. In the one city of America that had a plan, in the city for which Washington secured the advantage of that sense of design in which the French are so superior, in the person of L'Enfant, wherever you go you have before your eyes something noble and beautiful. Here (in New York) the fine things are by-products, they are sideshows.

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"I hope for our city in the future that the immense increment to human happiness, which comes from the cultivation of tastes, may be gratified and nourished by laying before the people, always, objects that are noble and beautiful, that will ennoble and beautify character, so that the people of this great city will contribute to the character of America not weakness, but strength and vigor."

Does it pay to provide opportunity for the beautiful when making a plan for a new town or city, or in replanning an old one? Such provision costs nothing, unless it can be shown that the services of a more skillful planner cost more than a less skillful one. In any case, a city plan that has a right regard for design and composition and for the location of streets and buildings and open spaces is certain to result not only in an increase of both convenience and beauty in cities, but also in the creation of property values that fully justify the beautiful from a purely economic and financial point of view.

In conclusion we come again to what is perhaps the most difficult phase of a complete city planning program. It is to form public opinion and to get action on the beautiful in city planning, as with other phases of the subject. That there is skill enough to produce a city plan giving opportunity for the right location, grouping and assembling of streets, open spaces, parks and buildings has been demonstrated by the expositions held within the last thirty years in this country, notably the World's Exposition at Chicago in 1893 and the San Diego Exposition in 1915. If the people of our cities could be made to understand that in city planning they are dealing with the same type of practical idea only on a larger scale, they would follow it to the end. In discussing this very matter Vachel Lindsay has vividly presented in his new volume on "The Art of the Moving Picture" the new agency that we now have at our service to carry out a much greater program than hitherto would have been possible. He says, "Here we have this great in-

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strument, the motion picture, the fourth largest industry in the United States, attended daily by ten million people, and in ten days by a hundred million, capable of interpreting the largest conceivable ideas that come within the range of the plastic arts and yet those ideas have not been supplied. It is still the plaything of newly rich vaudeville managers. The nation goes daily to the movies, through intrinsic interest in the device, and is dosed with such continued stories as the Adventures of Kathlyn, What Happened to Mary, and the Million Dollar Mystery, stretched on through reel after reel, week after week. Kathlyn had no especial adventures. Nothing in particular happened to Mary. The Million Dollar Mystery was: why did the millionaires who owned such a magnificent instrument descend to such silliness and impose it on the people? Why cannot our weekly story henceforth be some great plan that is being worked out, whose history will delight us?

The great material projects are often easier to realize than the little moral reforms. Beautiful architectural undertakings, while appearing to be material, and succeeding by the laws of American enterprise, bring with them the healing hand of beauty. Beauty is not directly pious, but it does more civilizing in its proper hour than many sermons or laws."

"Is there a reform worth while" says this man of vision, "that cannot be embodied and enforced by a builder's invention? A mere city plan, carried out, may bring about more salutary economic change than all the debating and voting imaginable. So without too much theorizing, why not erect our new America and move into it?"

May I repeat as conclusions the statement with which we began:

1. That American towns and cities, if they are to fulfill their purposes satisfactorily, must be beautiful. The city itself should be a work of art.

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2. That towns and cities cannot be beautiful without a city plan.

3. That the actual beauty is achieved largely through works of architecture, landscape architecture, sculpture and engineering but in locations and under conditions that can only be made possible by a city plan.

4. That it pays to provide for the beautiful in the city plan.

Finally, we must recognize that most of us live in ugly cities, and there is little or no need for it. The question is not one of optimism or pessimism, but of honestly facing facts. True, we must be practical and look after the utilitarian needs of modern city life. That, however, does not involve a neglect of the beautiful. You may remember the phrase of the old Bishop in "Les Miserables," "The beautiful is as useful as the useful," adding, "and perhaps more so." In our city planning we must provide for people, and if we are to successfully provide for people we must think of their happiness, and if they are to be happy, the beautiful must be included in any complete program. Such a program calls for the transformation so far as that is possible through the replanning of existing cities, but the program should also include the building of new cities on new lines, free from the hampering conditions that are characteristic of old cities. How entrancing is this prospect! To have any part in a broad city planning program is to have an enviable life, giving opportunity for genuine and permanent public service.

The best method of demonstrating the Place of the Beautiful in the City Plan is by means of illustrations. Arrangements were therefore made to have some sixty-seven lantern slides shown with this object in view, classifying them so as to show that it is the city plan that provides the location and arrangement, the elevation, the gradient, the foreground, the background, the vistas, either formal or informal, the street scenes, a proper sense of



ELEVATED RAILWAY, BERLIN

Proper scale in a city plan provides not only the necessary convenience but also a place for the beautiful. Contrast, for instance, the appearance as shown above of a street in Berlin of adequate width, carrying elevated railway structure, and a street in New York City or Chicago. Most American cities have inadequate street widths not only for traffic purposes but for a proper treatment of the street from the point of view of appearance also.

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scale and the broad relationships of one part with another; in fact, the whole environment and the opportunity for the grouping, assembling and composition of public works under conditions that make them truly and permanently beautiful.

A list of the lantern slides follows, and a few selections are here reproduced in the Proceedings.

I. Location and Arrangement

Panorama of Paris from Arc de Triomphe
Airplane view of Manhattan, New York
Plan of Champs Elysees, Paris
L'Enfant's Plan of Washington, D. C.
Map of San Francisco
Plan of Williamsburg, Va.
Street Arrangements—Good and Bad
Metropolitan Park System Diagram, Boston
The Muddy River Parkway, Boston
Waterfront View, Dusseldorf, Germany
Waterfront View, Haverhill, Mass.
Waterfront View, La Crosse, Wis.
The Elbe River, Dresden
Airplane View of San Diego, Calif. Showing Waterfront
The Erie Canal, Schenectady, N. Y.
Clare College, Cambridge, England
Sherwood Forest, England
Grandad Bluff and Coulee—La Crosse, Wis.

II. Street Intersections

General Sketch Plan of Street Intersections
Airplane View, Piazza del Popolo, Rome
Piazza del Popolo, Rome (two views)
Main and Pleasant Streets, Worcester, Mass.
Post Platz, Dresden

III. Foregrounds

Plaza and Union Station, Washington, D. C.
Pennsylvania Railroad Station, New York City

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Airplane View, Place de la Concorde, Paris

Open Space, Munich

Maximillian Strasse, Munich

General City Plan, Munich

IV. Background

On the Way to the Botanical Gardens, Rio de Janeiro

Avenida Central, Rio de Janeiro

Theresian Strasse, Innsbruck

Meiringen, Switzerland

V. Vistas (formal)

Airplane View, Opera House, Paris

L'Avenue de l'Opera, Paris

Airplane View, Washington, D. C.

Street View of Washington, D. C.

Post Office, Chicago

Court House in a Southern City

City Hall Vista, Boston

Airplane View, Back Bay, Boston

Strassburg Cathedral

Amsterdam Canal

Street Arcades, Paris

Basin of Apollo, Versailles

Section of New York City

Wall Street Showing Trinity Church Vista, New
York City

VI. Vistas (informal)

High Street, Oxford, England

Magdalen Tower, Oxford, England

Roadside Cottage, Grasmere, England

Brattle Street, Cambridge, Mass.

Street View, Forest Hills Gardens, Long Island

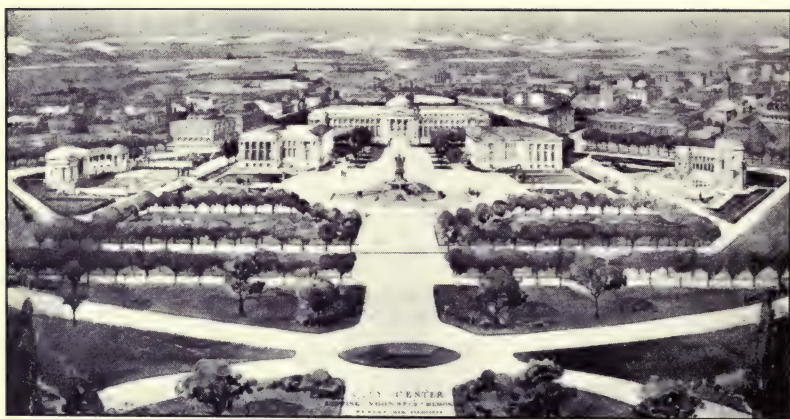
VII. Scale

State Street, Madison, Wis. (two views)

Elevated Railway, Berlin

The Bowery, New York City

Bulow Strasse, Berlin



CIVIC CENTER, DENVER, COLORADO

Denver has one of the most complete and most beautiful civic centers in the United States, and illustrates both the practical and aesthetic advantages of the grouping of public buildings.

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VIII. Grouping of Buildings

The Municipal Tower, Springfield, Mass.

Civic Center, Denver, Colo.

Part of City Map, Springfield, Mass.

Connecticut River Bridge, Hartford, Conn.

Plan for Civic Center, Little Rock, Ark.

Bird's Eye View, San Diego Exposition

IX. Conclusion

General Plan, Mariemont, Cincinnati, Ohio

The Borough of Dunmore, Scranton, Pa.

Town Center, Mariemont, Cincinnati

General Plan for Replanning Flint, Mich.

Lagoon—Chicago Exposition, 1893

THE VALUE OF ART COMMISSIONS IN CITY PLANNING

ANDREW WRIGHT CRAWFORD

Secretary of the Art Jury of Philadelphia

For much of what I am about to say I am indebted to the courtesy of Dr. Albert Shaw, Editor of the Review of Reviews, in allowing me to quote freely from an article I prepared for the Review of Reviews last year.

The art commissions of American cities are among the recently created public agencies that have been producing results in the matter of the beautiful in city planning. Their work has been little heralded. They have preferred to let results speak for themselves. This reserve has been an advantage to the commissions in their own jurisdictions; but their achievements have been so definite that their experience should be made available so that every city and town may realize what may be gained by creating similar bodies. There are now about thirty municipal art commissions and three States commissions, and, in addition, there is a federal body called the Commission of Fine Arts.

Art commissions have no retroactive power. They cannot order a thing torn down which was erected before their time. The greater part of their work has to do with the environs of cities where new construction is going forward, and the cumulative effect of their accomplishments can only be gained by rather extensive tours on the outskirts of cities. Consequently, knowledge of what they have done is generally confined to the immediate neighborhood of the location of each work.

The name "art commission" suggests that it has to do with painting and sculpture. In the case of some commissions this is measurably true; but those which have

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been securing the most notable results have much more to do with public work—bridges, street furnishings such as lamp-posts, public buildings, piers, and similar structures. In Philadelphia the Art Jury—as the commission there is called—has considered in its nine years of existence 1,250 submissions, and less than 5 per cent. of that number have had to do with paintings and works in sculpture.

Art in public work does not mean ornament. One of the most successful bridges recently erected in Philadelphia is entirely devoid of ornament and consists only of concrete arches, in which the concrete parapets are moulded as concrete demands. When the Art Jury considered the design submitted, the only change it made was to strike off some ornaments. The architect promptly said that he had not provided for those ornaments until he had been told that the Art Jury must pass upon it. But art means beauty of line, not ornamentation.

Many persons think that art in civic improvement involves additional costs. It does not. It requires more care in design and more time. It does not require more, but rather less, money for actual construction. The approval or disapproval of art commissions is not based upon cost. As long ago as 1912 the Art Jury of Philadelphia declared: "It should not be necessary to say that the disapproval of the Art Jury was in no case based upon the cost of the proposed structure. A monument that was to have cost \$50,000 was disapproved, as well as a small fountain that was to have cost \$900, while the design of another fountain to cost \$400 was approved."

The fact that art does not mean expense was brought out rather strikingly in the first report of the Art Jury of Philadelphia. On the first ten submissions to the jury, Charles C. Harrison, former provost of the University of Pennsylvania, and at that time president of the Art Jury, reported that the saving was estimated to be more than \$41,000. In the second report of the jury it was noted

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that the total cost of forty-five submissions made or considered during the year was \$9,132,819, while the cost of maintaining the Art Jury during the year was only \$3,934. The annual budget of the jury even now is but \$4,700.

The studies of the New York Art Commission—which has a budget slightly in excess of the Philadelphia body, but still very low—frequently covers a total of work that will cost the city forty or fifty million dollars. For this drop in the ocean of public expenditures, cities that have art commissions secure expert public advice of the greatest authority. The members serve without pay.

Frequently broad consideration of fitness, quite as much as design, have determined the action of the Art Jury of Philadelphia. It was proposed to erect a fire station to be constructed of marble. The Jury disapproved of the use of marble for a fire station, as a matter of principle, quite apart from the design; and the Department of Public Safety adopted the suggestion that brick be used instead. The recommendations of the Jury caused a saving of \$1,070 in expense. Generally the Jury's action has resulted in decreased cost; but it has not sought either decrease or increase of cost as a main object. That the cost has been reduced in many cases shows good taste and economy to be often synonymous. The Jury has not hesitated, when necessary, to recommend changes which have increased the cost.

All existing art commissions are similar in composition. They generally contain, according to the laws creating them, one architect, one sculptor, and one painter, and then a body of laymen whose qualifications are assured in one way or another. In New York City the Art Commission is composed of the mayor, the presidents of the Metropolitan Museum of Art, the Public Library, the Brooklyn Institute of Arts and Sciences; of one painter, one sculptor, and one architect; and three others, none of whom may be a painter, sculptor, or architect. The six last mentioned

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must be appointed from a list, of not less than three times the number to be named, proposed by the Fine Arts Federation of New York. In Philadelphia the present charter provides that in addition to the professional members, the lay members shall consist of one business man and three individuals, each of whom must be a member of the governing body or teaching force of an institution conducting a school of art or architecture; none of the four last named to be engaged in the practice of painting, sculpture, or architecture.

The Commission of Fine Arts, which is the national body, has jurisdiction over all works of art created by or under the authority of Congress or for which a federal appropriation is made. This is a general statement and is to be regarded only as usually true; because Congress may, if it chooses, negative the necessity for approval by the National Commission of Fine Arts. The work of this body, however, has been very notable. It has become the special protagonist of the plan for the development of Washington prepared by Augustus Saint-Gaudens, Daniel H. Burnham, Charles F. McKim, and Frederick Law Olmsted. The consummate Lincoln Memorial, beautifully placed, is an excellent example of the wisdom of the creation of such a body. That commission, with the help of Senator Root and the Washington Fine Arts Society, had to wage a lengthy battle for its location at the point chosen.

We are sometimes asked how smaller cities or towns can appoint an art commission when perhaps a desirable sculptor or painter is not resident in the town in question. There is no real difficulty, because the professional members need not be citizens of the town concerned. Pittsburgh has had residents of New York City as the painter and sculptor members of its Art Commission. There are plenty of public-spirited men among painters, sculptors, and architects, and there is no fear that their services will not

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be given gratuitously outside of their own towns if they are wanted. To provide for rural regions—to prevent, for example, iron-truss bridges straddling noble rivers—every State should appoint a State Art Commission, giving it jurisdiction in villages as well as in the open country.

One method of preventing the enormities which now disgrace so many of our public places is to create both city and State art commissions; and it was largely due to this feeling that the Pennsylvania Art Commission was appointed a year or two ago. The other State art commissions are those of Massachusetts and Virginia. There is also, in Hartford, Conn., a Commission on Sculpture, which appears to have some State functions.

It is provided in acts creating art commissions that works of art shall not become public property by purchase, gift, or otherwise, unless the work of art, including its location, shall have been approved by the art commission. The stronger commissions are also given authority to pass upon all public buildings to be erected by the city or with the help of city funds, or for which the city is to furnish a site. An important provision is that no private structure shall be erected upon or extended over public streets unless similar approval is secured.

The location of a work in sculpture is responsible in general for 50 per cent. of its effect, perhaps for 75 per cent.; the remainder upon the success of the object considered apart from its location. This is not true of great works in sculpture, which are so superb as to dominate their surroundings even when badly placed. But, in the mass, it may be safely said for all sculpture that its proper placing has more to do with its success than has the chisel of the sculptor.

My own observation is that most works in sculpture are best placed when they can be and are located as an accent of the town plan. Herein lies one cause of the ugliness in so many of our American cities; the "gridiron" plan offers

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little opportunity for successful location of monuments or memorials. That form of city plan—if it can justly be called a “plan”—has seen its day, but its evil effects will be felt for generations to come.

The introduction of concrete has made the work of art commissions vastly easier than it might otherwise have been. Arch concrete bridges, or bridges encased in concrete, can usually be attractively designed with little difficulty. Even when not encased in concrete, but built of steel, a surprising amount of attractiveness can be given. Indeed, the Alexander III Bridge of Paris, one of the most famously beautiful bridges of the world, is a steel structure.

The Art Jury has no direct jurisdiction over the material of structures; except that a design may be appropriate for one material but inappropriate for another. Occasionally the Art Jury has taken stronger action. It has condemned corrugated iron for any public structure. Corrugated iron is that wavy type of material which does not retain paint well, which quickly rusts and sags, and gives a generally dilapidated appearance to its neighborhood; and the complete abandonment of the use of corrugated iron on any structure extending over streets, such as an awning, has been recommended.

The work of art commissions and that of city planning commissions dovetail to a considerable extent, but the two should be kept carefully separated. The function of the city planning commission is to look to the future. It has to do with the present only so far as plans to be put into execution immediately will affect the future development of the city.

The city planning commission is the imagination of the community. Its duty is to foresee city growth and to provide adequate plans for the growth. It is essentially constructive.

The work of the art commission, on the other hand, is essentially critical. Its function is to be helpful, by way

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of criticism of a work to be done immediately. When the city planning commission has prepared a plan for city growth, the actual details of construction are not carried out by it, but are left to the department of public works. That department proceeds to have the plans of a particular improvement prepared, and when so prepared the plans are submitted to the art commission for its criticism, so that the work when completed shall have all the attractiveness that good designing can secure for it. Thus the work of the city planning commission is separated from that of the art commission by the interposition of the department of public works. It is important that the work of the two bodies be differentiated, even though some members of the one may be desirable as members of the other.

One of the powers for which city planning commissions of the United States have been contending is that of excess condemnation, the power to condemn more land than is required for public work (as, for instance, a new thoroughfare) and to sell the excess abutting property at the increased price caused by the improvement.

Powers of excess condemnation have been granted by changes in the constitution of several of the States, including New York, Massachusetts, Ohio, and Wisconsin. Where such power has been granted and is exercised, an opportunity is made available for art commissions to be of great service to cities.

Ordinarily, it is not constitutional in these free United States of America to give art commissions any jurisdiction over private buildings to be located entirely upon private property. It has heretofore been regarded as one's inalienable right to ruin the financial investment of his neighbors in beautiful homes by the erection of any value-depressing monstrosity on his own land.

How long it will be before the appearance of cities is recognized as within the police power of the State is a problem. There are strong indications that the time is not as far

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distant as we used to think it was. Esthetics are now allowed to enter as an accompaniment of an exercise of the police power, provided they come in discreetly by the side door and not obtrusively by the front entrance. I know of no case, however where the Supreme Court of the United States has said that esthetics alone are not a sufficient ground for the exercise of the police power, though there are decisions of State courts to that effect. The Supreme Court recently held constitutional a Chicago ordinance forbidding billboards within residential sections. Nevertheless, it has not yet been attempted to give art commissions power over private structures on private land.

In some European cities "Bureaus of Building Advice" have been created. They have no real power; but when a building plan is submitted to the agency, whose duty it is to pass upon strength, that inspection board refers the plans to the Bureau of Building Advice. The latter bureau, if it believes the plans are not in good taste, sends for the applicant and makes suggestions to him. If the applicant does not care to adopt these suggestions, I am informed that it is a considerable time before the Bureau of Building Inspection passes the plans—a delay which is apt to become a sufficiently effective hint.

The jurisdiction of art commissions is being gradually extended. In Philadelphia the Art Jury has control over signs erected upon or projecting over the public highways. This subject has been a difficult one to handle, but the public has finally fallen in behind the Art Jury. The danger of overhanging signs to pedestrians is so obvious, and their ugliness is so apparent, that an association of Chestnut Street merchants has been formed, the purpose of which is to secure the abolition of all overhanging signs.

The example of Fifth Avenue, New York, was potential. Through efforts of the Chestnut Street Association, an

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ordinance was passed in 1920, which forbids signs projecting more than eighteen inches. In downtown Chicago projecting signs are almost a thing of the past.

Not only street signs, but street structures of all kinds are being submitted to art commissions, and they are steadily securing better results. The lamp standards of Baltimore, the direct work of the Art Commission of that city are admirable. Nothing abroad compares with them or with the similar standards in Washington.

An amusing experience is the way applicants seek a method of advertising themselves by making private use of the public sidewalk, and actually and honestly delude themselves into the idea that their main purpose is to serve the public. This appears to be an especial failing of those applicants who want to erect clocks on the public highways. Really, few people who want watches are without them. One applicant was especially anxious to put up a clock in Philadelphia "for the benefit of the public;" and he was rather disconcerted when it was pointed out that the clock in the tower of Independence Hall was in full view of the location where he wanted to erect his clock. A significant part of the proposition, of course, was that the applicant wanted to put his name on the face of the clock, though in "quite small letters."

Though a "near engineer," having studied civil engineering as a post-graduate, I am compelled, by nine years' official experience, to the conclusion that the ugliness or plainness of American cities is due in large part to the profession of engineers; but I do not believe it is in its origin their fault. It is the fault of their teaching in the technical institutes of this country. The results seem to show that design in its real sense is not taught. "Construction" is taught, but construction is not design. Merely to connect the bottom of three lead pipes so that water spouts out of the upper ends is not to design a fountain.

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Merely to learn how to draw the plans of a bridge so that it will stand up is not to learn how to design it. That is construction only; and, while construction is the fundamental foundation of design, it is not design.

The engineering profession is being pushed out of some occupations which should belong to it, because of this lack of appreciation of design. City-planning would appear to be peculiarly an engineering function; yet architects and landscape architects are rapidly preempting the field. This is a reaction entirely to be expected from the ugliness of dreary gridiron plans of streets with which civil engineers have strait-jacketed American cities, failing to show any knowledge of design.

I was much struck by a question put to me at a conference of the American Civic Association. In an address I had shown a number of former bridges, built by engineers in accordance with their knowledge of construction, and, by way of sharp and obviously convincing contrast, I had shown the far more attractive bridges, really designed, which had been erected since the approval of art commissions had been required. A recent graduate of a foremost institute of technology asked me if I thought architects would supersede engineers as builders of bridges. The obvious reply is that architects will build our bridges as well as lay out our cities, unless engineers are taught, or teach themselves, the principles of design.

The work of art commissions has to do not only with the appearance of cities, but, to a certain extent, with their financial status as well. We are only beginning to realize in America that ugly things cost money. We have a slight but growing idea that municipal beauty is a financial asset of some magnitude. Statistics show, for example, that tourist travel was worth \$10,000,000 more to Canada in 1913, the year before the war, than its fisheries were.

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But we have not begun to realize the cost of ugliness. If beauty pays, how much does the rank ugliness of so many American cities cost. We are just beginning to accept the obvious principle that values of real estate are depressed when owners of opposite property permit the erection of billboards. Likewise, if ugly bridges are erected in residential or suburban or undeveloped sections, people seeking homes are not going to select places where they will be obliged to see those bridges.

American culture is determined to eradicate the ugly and create the beautiful. The beautiful would be created even if it were more costly; but the work of art commissions is demonstrating that the beautiful is cheaper in original cost than the ugly. Moreover, an ugly thing, especially if its ugliness is necessarily conspicuous, as in the case of most bridges, is apt not to be permitted to last out its expectancy of life.

Lawson Purdy has well defined beauty as "the skilful adaption of appropriate means to useful ends." The power of beauty, as thus defined, is too patent to deny its potency; the sheer cost of ugliness is too great long to be camouflaged. And the public art commissions of the United States are demonstrating these principles.

THE QUESTION BOX

QUESTION

What are the merits of zoning under police power as opposed to zoning under condemnation or eminent domain?

ANSWER—E. M. BASSETT.

Eminent domain is employed where property is taken for a public use and the taking must be upon payment of just compensation. This differs greatly from the police power which is that power which protects the community and can be exercised for the health, safety, morals and general welfare of the community. Under the police power a person gives up some of his personal or property rights because he is to be protected as well as his neighbor. Therefore no compensation is made. The same is the case with fire limits, sanitary devices and epidemic prevention.

Zoning cannot be done under eminent domain. Where ever it has been tried it has either been a failure or only a partial success. The reason seems to be that for each parcel of land, which has some of its full and complete availability taken away, a value must be placed on what is taken. If this is done for all of the parcels of a great city, the work is enormous. When, however, the city comes to assess these awards upon the property benefited the task is ten times as great. Nevertheless the awards must be assessed because the treasury of the city cannot well pay all of these awards. But even if a city could succeed in zoning itself by eminent domain and going through all of this detail work, the city would be worse off than it was before. It would be crystallized. It could not adapt itself to growth and changes. This is because the result of condemnation is to impose a permanent limitation on

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land. This restriction or limitation could only be removed by a new condemnation proceeding followed by a new assessment. The cost of these constant changes would be prohibitive.

Moreover it is not necessary to employ eminent domain for zoning. Zoning the land and buildings of a city is not taking them for a public use. It is placing protection upon land and buildings for the common benefit.

Zoning in the United States is done under the police power. No money payment is made to the property owner. He has a right, however, to be protected against confiscation or arbitrary or unequal treatment. He has a right to insist that the zoning shall be reasonable and for the benefit of the community. The comprehensive plan must have a relation to health, safety, morals and the general welfare. It cannot be confiscatory or for aesthetic purposes or merely to enhance the value of land or buildings. The highest court of the state of New York has declared that the strength of a zoning plan depends upon its reasonableness and fairness. This was said in a decision giving the blanket approval of the court to the plan of zoning the city of New York.

The zoning of New York under the police power is proving to be elastic and adaptable. Minor changes are made weekly in the zoning maps. These changes can only be made after advertising and hearings. The local legislature instead of gradually relaxing the maps are gradually strengthening them.

QUESTION:

Under what conditions, if any, should a non-conforming use be extended? If extended, will it ever reasonably be eliminated?

ANSWER—HERBERT S. SWAN, *New York City*.

I should say that the general attitude governing the con-

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ditions under which a non-conforming use should be extended may be answered by applying these tests:

Will it do any harm to the restricted districts? If not extended, will it reflect itself in depreciated property values? Will it affect property values adversely? If you can answer these questions in the negative, then I think the use should properly be extended.

If a man is in a locality previous to zoning, should he be allowed to expand if that lack of expansion would cripple his business? If he can extend in such a manner as not to depress property values, or not to inflict more injury on that locality, he should be allowed to extend. If, however, it tends to make a residential zone more of an industrial one, he should not be allowed to extend.

If you attempt to reclaim a section, then I think it is a very doubtful kind of wisdom to extend.

All questions of this sort cannot be answered by yes or no; you must take all equities into consideration.

MR. WHITNALL.

The conditions that obtained in the now famous Had-dacheck Brick Yard Case and the Quong Wo Laundry Case, both of which originated in Los Angeles, were extreme.

When first established the brick yard was in the extreme limits of the city with no residence in the vicinity. It was on relatively high ground, which through the course of development became highly desirable as a high class residence district. In time the residences predominated. That produced the unique condition of the brick yard, which located there when it was virgin territory, becoming over night an almost intolerable nuisance. Then in Los Angeles came the zoning of districts. In this particular case action was begun and the city was able to eliminate the brick yard.

In the cases of the lumber yards scattered over the city, they were legislated out of existence but not over night.

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An ordinance, by which they were eliminated, declared that they were within the confines of the residential district and were given a notice to vacate in two years. There was not in fact any difficulty in the latter cases of the lumber yards, in that they were allowed to bring in sufficient amount of material so as to move that which moved slowly. This allowed them to move without loss to themselves. In other words, they were allowed to do business on one site while establishing themselves on another.

JOHN NOLEN, *Cambridge, Mass.*

The change with regard to nonconforming use, if any change is to be made, should be not an extension of such use but an elimination.

If the nonconforming use of a retail store in a residence district or of a factory in a business district were of such a character that it should be extended, then that extension should have been provided for when the ordinance was passed.

There are two points that might be noted. In the first place, as a store building or factory plant becomes old it ceases to be valuable for its original purpose, and the new construction would very often conform to the district. It would be to the advantage of the owner to have it so conform. However, there would be exceptional cases, and might it not be wise in such instances to consider the use of the power of condemnation in order to get rid of a very undesirable nonconforming use? It is easy to believe that it would be advantageous to surrounding property owners even to incur some expense in order to have such an exceptional nonconforming use of property removed.

JEFFERSON C. GRINNALDS, *Baltimore, Md.*

I can conceive that there may be border line cases which may be hard to decide. Suppose a nonconforming business had erected a building covering nearly all of the lot

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before zoning became effective, in fact, before it was thought of. Suppose the intention of the owners was to increase the size of the plant at some time in the future. After the passage of the zoning ordinance they may find that they could not expand except by taking land in another zone—in a residential zone perhaps. Great strides have been made in manufacturing recently and many plants find that they have subsidiary lines to the original business and that they have by-products which can be developed. Would it be fair to say that these people who had been in business for a number of years should not take the necessary additional land to keep up with their industrial development? Would it be fair to say that they ought to move the entire plant to a commercial or industrial zone? They may have several hundred thousand dollars or a million dollars invested by this time. The case may be such that the factory would either have to expand or move entirely. If the buildings were torn down the new structures erected would have to conform and therefore be for residence use, if the strict letter of the zoning ordinance were carried out. It is more than likely that the location would not be one which would be attractive for residence use and so the new residential structures are not necessarily permanent and might have to give way to another commercial use under an amendment to the zoning ordinance. In such a case one industry has been ejected from this district to be followed by residence, to be followed again by another industry. It seems to me that treatment of a nonconforming use such as I have mentioned in the beginning ought to be left to the zoning board of appeals. This board could make variances in the strict letter of the ordinance in harmony with the general intent and purpose of the ordinance thereby preventing unfairness, under hardship or confiscation.

G. H. GRAY, *New Haven, Conn.*

If condemnation was followed, might it not be possible

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for speculators to get into a neighborhood where they could not if zoning was in order, if it were known beforehand that they might have a chance of selling out for high-prices under condemnation proceedings?

WILLIAM FARRELL, *Scranton, Pa.*

In regard to the lumber yards and laundry, the gentleman from California stated that they complied with the ordinance without any loss to themselves. I would like to know in what manner the lumber yards gave up their property. Did they give the land to Los Angeles, or how did the city acquire the land and how did the lumber yard sustain no loss?

G. G. WHITNALL, *Los Angeles, California.*

By preventing a certain use the city does not acquire the land upon which the building was situated. Because a lumber yard requires merely a site upon which the lumber can be piled, that lumber can be removed without loss of buildings. It was simply a question of moving to a site which allowed for expansion. The lumber company still owned the land on which it was first established and this land became more valuable as a residential site than it was before as a lumber yard.

HARLAND BARTHOLOMEW, *St. Louis.*

In regard to non-conforming use, I would like to call attention to what has recently been said or done on this question.

When a case was presented before the Missouri Supreme Court the attorney was asked by one of the justices why certain people were allowed to continue so-called non-conforming uses, when others were prevented from establishing the same sort of use after the ordinance was passed. He replied that we did not wish to take away those buildings, that he did not think we would have been justi-

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fied in eliminating the use of those buildings. Equity was in the mind of the Court.

In an Illinois case recently before the Supreme Court it was declared that no ordinance nor any state law that authorized the continuation of one use and the prevention of another was valid. The Court was thinking of the inequity which would occur in the case of adjoining properties. It did not have called to its attention the fact that the city might be divided into zones and that different conditions might be found between the property uses of those zones.

Mr. Nolen's suggestion is that equity should be applied by condemnation. Think of the inequities that may be permitted by a Board of Appeals in this regard. Here is one who may be permitted to continue in business, yet it might not allow another permission to make a similar use in that neighborhood. The nonconforming use is monopolistic and must be eliminated at the earliest possible date.

Most every zoning ordinance which I have observed is not getting at the non-conforming use question properly because they are compromising. We cannot compromise on this question. It must be vigorously handled.

As an illustration, in one city where zoning is under consideration one man has a laundry in a residential district. It has been proposed to allow him to extend yet they would not think of allowing another new one to come.

In another city an old real estate office was allowed to change into a grocery store and to be replaced by a brick building. A man who has a nearby vacant lot protests that he was not allowed to build such a structure on the vacant lot. Obviously the non-conforming use in this case should not be permitted to prolong its life, minor alterations should be permitted and those only where the operation of the plant might be interfered with or the equity wiped out.

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CHARLES H. CHENEY, *Alhambra, California.*

I agree with Mr. Bartholomew. Out in California where we have had ten or twelve years experience with zoning and handling non-conforming use of property particularly in Los Angeles, the first case which I remember as to whether it was legal or in equity to allow those uses which were in the wrong places to stay was a tenement house case. When the Tenement House Act of 1909, was passed, it incorporated restrictions in regard to light and air. In order to see if we could close the old tenements which did not have these restrictions a case was tried in court. The Superior Court decided that we could keep things from getting any worse, and it was on this decision that we got permission to go ahead until we wiped the old tenements out. In Berkeley we gave them one year to get out.

QUESTION:

Is there any feasible method by which zoning can "grade up" or rehabilitate blighted areas when property values are abnormally depreciated?

MR. BARTHOLOMEW.

Blighted areas can be built up. Murray Hill in New York is one example. Other districts have been rehabilitated. There are large blighted areas in St. Louis, property has gone out of use and values greatly depreciated. Zoning cannot alone always be depended upon to rehabilitate. The size of the city is apt to influence the size and character of the district. In a particular instance in St. Louis, we have rehabilitated an area approximately two square miles more by street planning than by zoning, however. In some cases property values have increased \$200 a foot. Zoning will usually prevent depreciation.

MR. BASSETT.

In answer to Mr. Nolen's question whether or not con-

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demnation might be applied in the case of non-conforming uses the question involves substantially the same answer as might be made regarding rehabilitation of blighted districts. The Five Points locality in New York was a blighted district and, largely with a view to improving the district, Reis Park was opened by condemnation. Just so a non-conforming factory district or a blighted residence district might be condemned for a park. It must be taken for a public use such as a park or public square, but cannot be taken to give some one else the privilege of putting up a building of conforming use. State constitutional amendments for excess condemnation have not thus far made condemnation possible for the purpose of replacing old private buildings with new private buildings.

MR. NOLEN.

I mean, not the taking of property but the condemnation of property for that use. An easement idea was what I had in mind. I did not have in mind the taking of property for public use.

MR. BASSETT.

The suggestion is that an easement might be imposed on property instead of actually taking the entire property. Nevertheless, the taking of an easement must be for a public use. In Copley Square, Boston, the easement in regard to the height of buildings was for public use because it affected the public square about them. This is a case of limiting the height without actually taking the property, but a public place was sought to be protected by the easement taken. To the extent you can make it a public purpose you can carry out the improvement condemnation. But compelling new buildings to take the place of old would probably be considered by the courts to be a private purpose.

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MR. FORD.

In one suburban city a number of apartment houses were put up recently. Instead of going into blocks where there were already other apartment houses each new one located in detached home district and with the result that neighboring property values in some cases were cut in halves. When zoning was put in effect early in 1921 the applications for building permits increased 1000% above what they were before. When applicants were asked why they applied they said they dared to build now as they had not before. There was a strong market for unimproved property, even immediately adjacent to the apartment houses. Even owners next to an apartment house were in favor of zoning for it prevented an apartment house going up on the other side of them and thus further cutting down the value of their property. Zoning has actually stopped depreciation.

QUESTION:

Who has definitely legislated Building Set-Back Lines and on what basis did they do it?

ANSWER—ARTHUR C. COMEY, *Cambridge, Mass.*

Restrictions establishing building lines were almost always fixed by eminent domain before zoning was introduced. Brookline and Winchester, Massachusetts, are good examples of this method, having established miles of building lines with almost nominal damages in most cases.

Zoning gave a new interest to this question and there have been at least three different methods of doing it.

One is the one adopted in the Newark ordinance. By this if a majority of 75% or 80% of the buildings conform to a building line, all future buildings must conform that is, if you draw a line which has 75% of the buildings on or back of it, that line is the building line of that street.

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In Milwaukee we required that one-fourth of the street should be built up before a line was established. In certain cases a building coming in between two others already in front of the line would be allowed to come out to as far as they did. Sometimes, however, such a building would upset the present line and advance the line for future buildings—the so-called “travelling” line, to which some legal objection might be made.

In Detroit we required that all the buildings must be behind the line and at least 25% of the street must be developed, thereby avoiding the traveling line. No building line will be established more than twenty-five feet back. It is also provided in the proposed Detroit ordinance that where there is no building on the street that no future buildings shall be less than ten feet back.

We scaled down the maximum set-back line for the tall apartment house district to ten feet. The building line holds for any side of a street between two others and any portion of a street within a given district.

We also tried out a slanting line at a one to four slope between the business street and residential frontages starting from the back corner of the business lot but decided it was too complicated.

In studying the matter in Massachusetts where the streets are apt to be very much narrower, we came to the conclusion that we could introduce another method. In Brookline and in Cambridge in the most restricted district no building is to be less than thirty feet from the center of the street nor less than ten feet from the side of the street.

In the Cleveland building line ordinance they have adopted a building line map. In some sections they have ten feet, others fifteen feet building lines, and others none at all.

Out of all of these methods I hope we are going to get some real advance in establishing building lines through our zoning.

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ROBERT WHITTEN, *Cleveland, Ohio.*

The Cleveland Building ordinance has been in force for eighteen months. It covers all of the residence sections and frontages along the less developed portions of business streets. In the residence sections new buildings are not permitted to extend nearer to the street lines than existing neighboring buildings. The alignment of the existing buildings is made the building line. In undeveloped residence sections the building line is fixed at 15% of the average or normal depth of the lots in the block. It is believed that as a general rule building lines in already built-up sections should be based on the alignment of the existing buildings and that in undeveloped sections the chief determining factor should be the normal depth of lots in the block. Ordinarily in a land subdivision where building lines are fixed by the developer, they have a rough relation to the depth of the lots in the subdivision. With 150 foot lots a greater set-back is reasonable than in the case of 100 foot lots. Of course, in the case of very narrow streets, it may be desirable also to have the building line related to the width of the street. It is not thought that any general rule as to building lines can be imposed in all cities. The Cleveland Building Line regulations seem to work well under the conditions of street widths and lot sizes found in that city.

C. J. HAMLIN, *Buffalo, N. Y.*

Assuming that lots on one side of a street have a depth of 80 feet and on the other side 150 feet, how would you treat them?

MR. WHITTEN.

The normal arrangement would be that the building line should be less on one side than on the other.

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QUESTION:

Is it fair to property owners to establish boundaries of a proposed park or parkway in advance of appropriation of funds for the purchase of the land?

CHARLES H. CHENEY, *Alhambra, California.*

We had a case in Berkeley where we could not get any money to buy a park, so we leased the land paying one-fifth of the total rent each year for five years. The only thing we had to watch out for was that succeeding changes in administration didn't overlook paying for two or three years.

In Alameda we applied the same principle. When you cannot vote funds to cover entire purchase price you can pay on installments. Most of our cities, however, will not allow debts to run over two years.

ARTHUR C. COMEY, *Cambridge, Mass.*

In Milwaukee also a small payment on total purchase price of one-fifth was made. Unless a payment is made it is doubtful how far we can go in putting a reservation for any purpose on the map.

MAJOR CARY H. BROWN, *Washington, D. C.*

Several years ago Congress, which makes our legislation, authorized the purchase of Rock Creek and Potomac Parkway. They consist of a number of small parcels of land with a total valuation of perhaps \$1,000,000. The sum of \$200,000 has been voted annually towards the purchase.

In the case of the Patterson tract, with a valuation of \$750,000, we asked for a single appropriation of the whole amount. Congress proposed to authorize the acquisition of that tract but to appropriate \$200,000. The agent for the owners of that tract claimed that would be unfair legis-

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lation. We could possibly have bought a portion of the tract for \$200,000 and the owner could have sold the rest or held it for us as he saw fit.

MR. BASSETT.

Efforts are making toward the stabilization of the official map under the police power. If that can be done, then it assists in all city planning because officials can prepare the outlying country districts with a skeleton of a permanent highway system.

There has been a case decided in the highest court in Connecticut to the effect that the protection of the official city map is a proper exercise of the police power.

At present in most of our states the city council can put the imaginary lines of streets and parks on the official map, but the owner can put his building, if he so desires, within those lines, and then when condemnation takes place, he can demand and receive compensation for it.

Although the actual taking or street opening should come as nearly as possible after the official plotting of streets, yet in the case of outlying agricultural districts it would be premature to actually open streets. Their future location, however, should be protected.

It is hoped that some method for using a board of adjustment will be devised so that it can pass on what structures can be placed on mapped streets in order to minimize future damages.

QUESTION:

What measures might be provided to enable the automobile tourist to avoid passing through the congested centers of cities and also relieve those congested centers of the troublesome streams of through traffic, both of passenger cars and trucks?

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ANSWER—MR. FORD.

The first consideration we have is that business men on downtown streets are likely to insist that all traffic shall pass their doors. On the other hand, the obvious solution of traffic congestion is to make the traffic go around the central district. A by-pass thoroughfare can almost always be worked out. The amount that through traffic contributes to local business is relatively infinitesimal by actual observation and certainly not as great as many business men would think. If through traffic is by-passed more of the regular buyers can approach the stores and therefore values are enhanced.

MR. HAMLIN.

This is Buffalo's problem. Buffalo is laid out like a fan, the principal avenues being the ribs of the fan. In traveling from one outside rib to another you must go through the heart of the city. The more business men have studied this problem, the more decided they are that this through traffic must be diverted. Therefore, in order to solve this difficulty, we have provided for a circumferential or circuit traffic boulevard which forms a ring around this congested part. We have pointed out, in our publicity, that this circuit traffic way will relieve the through traffic which really works to the detriment of those who believe that through traffic should go by their doors at all times. The congestion is multiplied by tremendous through auto traffic and this will also be relieved.

Most of the people have seen the light and have enthusiastically endorsed the plan to relieve the congestion in our downtown section.

METHODS OF WINNING PUBLIC SUPPORT FOR A CITY PLANNING PROGRAM

S. C. KINGSLEY

Director, Welfare Federation of Philadelphia

After listening to the papers and discussions at conferences and meetings of the kind which has been in session here for two or three days, I am sometimes reminded of a remark made by Mr. Samuel Cruthers in his little book "The Pardoner's Wallet." The observation was elicited through the attendance of the writer at commencement exercises in which there had been an unusual array of eloquence on imposing subjects. Mr. Cruthers said that he came away with a sense that whereas the country had been in grave peril, the worst was over. We have a tendency to settle matters pretty generally in such conferences.

I am interested in one phase of community work which I suppose is the reason why Mr. Purdy asked me to address this meeting.

The federation movement concerns itself with that phase of the community service which is known as welfare work. It is a movement through which various communities are undertaking to get a better understanding, correlation and mobilization of their welfare organizations. The Federation is an association of such agencies through which they arrive at an understanding of the conditions and needs in our respective communities, and through which the double functions of budget making and planning and financing are carried on, and further creating a process by and through which standards and methods are created and promoted and the community comes into possession of facts and experiences which enable it to know what developments ought to be made to accomplish these tasks.

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Here is a mandate, then, given and accepted, which concerns itself with those agencies which take care of the health of the community, which safeguard and protect children who are orphans, neglected or who are dependent for one reason or another, which promotes recreation and the wholesome uses of leisure time for men and women, boys and girls, which concerns itself with the aged and the helpless, and which also concerns itself with character building and with the promotion of preventative and constructive measures in these various fields.

To my mind there is a common claim for public interest and support which can be made by both the federation promoters and those who are interested in city planning. After all, what is a city plan? It is not something remote or foreign to the daily interests and needs of men and women, boys and girls. It merely recognizes the collective relationships which have come about, and is only a larger way of planning for their needs and concerns. Our cities themselves, what are they? They are merely growths resulting from settlements by an individual family, then other families, and the original locations themselves were determined by such considerations as had to do with food and fuel, water and the fundamental human necessities. These locations themselves were determined by entirely natural considerations. They were made in places where the land and water met, where wild animals originally made trails in going to pasture and foraging for food. Now that the question of obtaining all these necessities is done not on an individual but on a collective basis, the consideration of such matters shifts from individual to community responsibility. We protect our rivers to their sources hundreds of miles away in the mountains because the spring no longer suffices and the pump has disappeared from the yard. Likewise the cow has gone from the pasture and we now send our inspectors distances reaching into hundreds of miles to see that the milk supply comes

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from wholesome sources. The woods and the fields are likewise gone, and we must needs have parks and public reservations to afford that opportunity for getting into the woods and stimulating something of the imagination that can come only from spaces covered with trees and some of nature's primitive handiwork. Streets and roads are likewise matters of vital concern because people must get to and from their work, and our very houses can be built only subject to regulations that make for or conform to health and to the convenience and happiness not only of the family itself but the health and comfort of others.

So it seems to me that the city planner in winning support for his idea has an absolute right to assume the intrinsic interest of all the people. The principal thing is to get the plan, to make it as simple and fundamental as it can possibly be made, to be sure that it is sound, that it is as free as possible from exploitation, and then command all of the finesse of making this known to the public.

The Federation proceeds on some such general policy, although the field in which it deals is a much more restricted field than the general idea of city planning. However, we proceed on the theory that nobody wants to live in a community that disregards the health of the people. Nobody would be proud of his town if no provision were made for the sick, and if men, women and children were allowed to suffer quite regardless of any expression of public concern in the way of hospitals, nursing organizations, dispensaries and other agencies which stand ready to fight for life and conserve and promote health. No one would be proud of his town if orphaned and neglected children were allowed to suffer and die without some provision made for their care and nurture. The same can be said in regard to the aged and helpless who have come to a time of life when they can no longer care for themselves. Nor would any community feel proud if it was regardless of the dreariness and monotony of congested city life with-

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out parks and breathing spaces and opportunities for recreation and that use of leisure time which tends to promote good citizenships and keep boys and girls out of juvenile courts and away from criminal careers.

We have had a great deal of individualism in this country. Perhaps the very genius of our Government, calling as it did in the early days of its inception for freedom of speech and association and for general self-expression, is one fundamental cause of this individualism. Certainly it has yielded an abundant fruitage in the religious field, for a few years ago when the "Inter-Church World" was making its study, it found that there were in the Protestant field alone something like three hundred sects and denominations.

There has been likewise a large fruitage of charitable and philanthropic organizations. In this country we have a larger amount of welfare service through private initiative than in any other country in the world. Some idea of the magnitude of this situation can be had from the fact that in our five largest cities,—New York, Chicago, Philadelphia, Detroit and Cleveland—there are something over three thousand agencies with a total annual expenditure of over one hundred million dollars. This is on our private agencies alone. We do not know the facts in very many of our cities, but the federation idea assumes that the people want to know these facts, and gradually in our different organized cities we are finding out how many agencies of this kind there are, what it costs to support them, how much of this money comes from earnings in the way of a return made by recipients for services, how much comes from income from endowments and from subsidies, etc., and then how much needs to be collected annually in voluntary gifts from the public. The studies so far made indicate that about fifty per cent. of the needs of the agencies in any given city will come from earnings, and somewhere from ten to fifteen or eighteen per cent.,

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from income on endowments, and in several of the states subsidies from State, County or City will amount to from six to ten or twelve per cent. It probably means, therefore, that in the five cities mentioned somewhere between thirty and forty millions a year is required in voluntary gifts from the citizens of these several cities.

It is a matter of surprise to a good many people in non-federated cities that organizations can thus come together, that they are willing to enter into thorough-going budget studies, to submit their plans and the details of their activities to a central body created by those coming into such association. I am often reminded by this expressed surprise of a remark made by some women who were talking together in the early days of the effort at church federation. One of them remarked to another: "Them Universalists over there think that everybody is going to be saved, but us Dunkards hope for better things."

After all, it probably would not seem to a man from Mars so strange that people who profess to be interested in the general welfare of the public should be able to work together on these matters which seem to be conceded to be of general public concern. It would seem that we should be able to achieve solidarity through service in these things which are of mutual interest. Why should it not be possible to get together in the name of services of this sort?

One day Patrick went to see his priest. When the main business of his visit was accomplished he felt in a talkative mood and engaged the good father in conversation on no less a subject than the Day of Judgment. His particular desire seemed to be to get some line on who would be there, and he asked the father if, in his opinion, both the North and South of Ireland would be represented. The father replied that he thought they would. Pat seemed to be a little incredulous, but thought he would try again. "Well, father, does yez think that both the English and the

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Irish will be represented?" and again the father said he thought they would. Then Patrick said: "Well, holy father, does yez think that both the Catholics and the A. P. A. will be represented?" Again to Patrick's astonishment the father said he thought they would, and Patrick said, as he doubled up his arm: "Well, father, then it is me humble opinion that there'll be very little judging on the furst few days."

There are people in many of our cities who feel that if the various charitable organizations get together on some such basis as the Federation idea proposes, that there will be very little charity work done for awhile at least.

The Federation movement is making very definite progress. There are now over one hundred cities that are practicing this method for the budgeting of their work for a common effort at collection of funds, and for the matter of standardizing and promoting the work in this field. You can move a city on a subject once a year, but you cannot move it one hundred or three hundred times. In one city in the Middle West there are in progress at this moment six campaigns for as many private organizations, and when these six are done it will only mean six out of two or three hundred. Two years ago that city had one hundred and fifty tag days in one year.

When a community has come together after the fashion I have mentioned, each agency in the Federation having submitted its budget and the plans having been worked out, the budgets of all of the agencies and the plans indicated by the budgets having been agreed to by a central authority representative of the welfare work of the city, a clear statement can be made to the community that, for instance, there is in that town an eight million-dollar enterprise in welfare work, that half of it is going to come from earnings by the agencies, twelve per cent. from income on endowments and other sources, and that say

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\$3,500,000 is needed. Then through every avenue of publicity—the press, the pulpit, the movies, the platform, house organs in various industrial and commercial concerns, and particularly through pageants and discussions in the public schools, the community can be acquainted with the conditions and needs in this field, and a time can be set when every person who has ability to take some part in the various activities of his city can enroll for the support of this enterprise. This has resulted in marked increases in the number of persons who are interested and who become contributors. The usual story is that from six to ten times as many people give in an effort of this sort as have given previously to the agencies that represent the Federation. This means going all the way from about two or two and one-half people out of a hundred who are helping to carry those services up to sixteen and eighteen or as high as twenty-five people in a hundred. It means also that there is a more adequate and secure support, and greatest of all, it means that the agencies come into that kind of association which makes it possible to use the facts and interpret the experiences in such a way that it may be known what developments ought to take place in this field. It provides information which can do away with overlapping, and better still prevent overlooking, which is not so much talked about.

I feel that there is immediately before the representatives of this convention a period of great promise and achievement. It cannot be possible that some ten or twelve millions of the best young lives the world has ever produced should within two or three short years have in vain yielded themselves up for the sake of a more ideal world. And where will we get that same ideal world if it is not this community and that community becoming progressively more fit to promote the health and happiness of its people, and this in turn will come only if there

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are more homes that are cozy, comfortable and beautiful, more opportunities to get to God's beautiful out-of-doors, more and better opportunities for employment which gives the maximum of efficiency with a minimum of unnecessary wear and tear on human bodies. What we want is that every man and woman, boy and girl in our various communities shall be able to say like Paul of old, and say it from the heart: "I am a citizen of no mean city."

METHODS OF WINNING PUBLIC SUPPORT FOR A CITY PLANNING PROGRAM

DR. SAMUEL B. WOODWARD

President Worcester County Institution for Savings

I feel that it is an audacity to stand before this assembly of experts, as I know next to nothing about city planning, and was rather surprised at the invitation to address you, but I suppose your president has heard of our efforts to win public support for our city plan and that is why he asked me to talk here.

In this matter of winning support in Worcester, we have progressed from apathy to enthusiasm in the course of a few months.

A year ago a city plan man appeared in Worcester and saw some of the directors of the Chamber of Commerce. Later he sold me the idea of a city plan about which I knew nothing up to that time.

A committee of three was appointed by the Chamber of Commerce to consider a city plan. It was promptly formed and never met. When I became president of the Chamber I suggested that the feasibility of a city plan be submitted to the Civic Affairs Committee. It slumbered there for three months and nothing happened. At the end of that time I arranged to have a city planning talk, at the Hotel Bancroft, which is a hotel similar to the one in which we are meeting, and at the dinner—I am a great believer in getting people together around a table—he talked to one hundred and twenty-five selected men. At the end of this talk I asked the men to put up their hands if they approved of the Chamber of Commerce going to work. Every hand went up. That gave me 125 men behind the idea.

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We interviewed various city planners, finally reached the point of endorsing the idea that Mr. Ford, Vice-President of the Technical Advisory Corporation, would best serve our particular needs. We gave some information to the papers. We made arrangements with Ford's firm in New York to make our plans and report back to us. The city government would, we thought, not give us any money for this. Three of the gentlemen drew up a list of forty-eight names and in a short time had \$8,500. In three hours I got \$4,000. Mr. Ford came to Worcester and went to work. That aroused a great deal of interest among the people.

Some one interviewed the Mayor and reported that he said, "No private person can run this city." This came out on the front page of an evening paper under great black headlines. The papers immediately besieged me for a reply. I said I must be given the same amount of space. They agreed and my name went clear across the paper—never saw the name of Woodward written so big before. The Mayor said he did not say what he was reported to have said. Then we gave a luncheon and the Mayor was present. He said he approved of the plan and personally made a contribution. Some of this I returned, saying that we wished his support but had not expected so generous a contribution.

We had a public meeting and Mr. Ford gave out some of his ideas. We then fed out our plan to the press, in a small way, but did not give it out completely. Mr. Ford completed his preliminary plan. A Sunday paper gave this report in full in a special section of the paper, profusely illustrated.

In getting his preliminary plan ready Mr. Ford asked for various subcommittees to look up certain matters. We had a historical committee, a committee to obtain suggestions from various associations, etc. etc. We appointed

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the chairman of these committees and asked them to appoint their own committees, and in this way got many people interested.

In Worcester there is a certain class of people who look with suspicion on anything that comes from the Chamber of Commerce.

We hand-picked for our Citizens' City Planning Committee seventy-five people; the Mayor, head of the sewer department, city solicitor, city engineer, street commissioner, superintendent of schools, President of the Board of Aldermen, President of the Common Council, and the Presidents of various clubs, such as the Rotary, Kiwanis, Woman's Club, Catholic Woman's Club, people connected with various daily papers, and others. The first seventy-five who were asked to join that committee joined, and out of the number solicited for money only one declined to give.

The Chamber of Commerce as a Chamber of Commerce ceased to control the situation. A report was made, and then we decided that we did not want to ask for more money from private citizens, and asked the city to take the matter over.

I omitted stating that a very important part of the committee work was done by the official City Planning Board and that we have been continually working in council with them. Massachusetts City Planning Boards have no power to carry out these plans; they can only recommend.

The last thing done was to have another dinner. We invited to that the city government, the heads of all departments and the Mayor. We kept at it by telephone and we got two-thirds of the city council, nine of the eleven aldermen, some fifty persons in all to come. Mr. Ford was there and showed some lantern slides. That is as far as we have gone.

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We had one illuminating experience in Worcester. We had the support of the daily press but there is in Worcester a labor paper which was opposed to the Chamber of Commerce and lost no opportunity to ridicule it. I acknowledge the article it recently published which shows a decided change of attitude.

I think we are going to put it over, though up to the present we have not. It will take from eighteen to twenty-four months to prepare a complete plan.

BETTER HOMES WITH MORE PROFIT

LAWSON PURDY

President of the Conference

We have passed far beyond the point where any of us think of our work as concerned only with the outward plans of the city. We think of and plan what we can do for those people who now live in homes which are no more than second-hand homes, who have always lived that way.

A few years before the war, I remember driving about with Werner Hegemann, a city planner from Berlin, and he said it was wonderful to hear us talk about "garden cities." He said, "We in Berlin are endeavoring to build them; you have them already." He saw the beautiful parts of Hartford, Connecticut, the homes of the well-to-do, the parks, wide streets and beautiful buildings. He had failed to take into consideration, however, how the rest of the people lived, certainly he had not taken into account how most of the people of all great cities live.

In small cities living conditions for the lowest paid workers are often worse than in the great cities which have ways of protecting the people who cannot protect themselves. The people who can afford it can take care of themselves. We have protected the well-to-do by zoning ordinances so they can live in safety. We have protected their homes from obnoxious neighbors. We have not done much yet for the man who cannot protect himself.

Some day, I hope in my day, we shall see a great change in the economic condition, so that no man shall seek a job, but the job shall seek him, that wages will be the full measure of a man's worth.

All who are engaged in city planning in this country can do something for tomorrow. I have of late been deeply

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interested in what I think is nearly a demonstration in the city of New York. We have in the past believed that in order to get the greatest revenue from a dwelling, we must cover the largest percentage of the lot possible. I think it is demonstrated that a tenement in New York will pay better if it covers not more than 50% of the lot than if it covers what the law allows, 70% of the lot.

One of the things about the race of man is that they follow precedent. Some years ago we made a very good tenement law for the city of New York as compared with the one preceding. This law required that no more than 70% of the lot should be covered, that the buildings should open on streets or on courts or yards of prescribed area and width. This law met with a great deal of opposition. The commission was dealing with men of a certain type who could not conceive that better buildings would pay. Many said in 1901 that no house could be built in accordance with this law because the house would cost too much. Usually the practical man follows the law of the past, following the same old calf paths, possibly made by wild animals before him, which man has followed ever since.

We have competent architects who say that a building which covers 50% of the land is a better paying proposition than one which covers 70%. They say that passages, halls and unused spaces absorb much of the additional area and increase the cost of the rentable area. If a building covers 50% of the land the rooms which open on the open spaces may command more rent than those which open on the street, because, in addition to having the same amount of light and air, they have the advantage of quiet and absence of dust. Such a house will be full when houses made in the old way are half full. There is great promise in our city for speculative building of that better type. We should so zone our city that it will be impossible in any part to cover more than half the land with buildings.

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Philadelphia is justly proud of its little houses set on edge instead of ours set on the horizontal. Yet they have made houses so small that they house almost as many people to the acre as do our towering tenements. A very serious and well-intentioned man asked me what was going to happen in the outlying areas of Philadelphia. He said they would not allow more than 50% of the land to be covered with buildings. If they allowed 70% a larger profit would be derived than if but 50% was covered. I said, "Your major premise is wrong. All of these things a man will pay for. He will pay for the things he wants, land for a garden, trees, grass, shrubs, open spaces, light, air,—not just rooms." That mistake of overcrowding is one of the prevailing mistakes of the so-called practical man.

Because a man can go out in the country and get land for very little an acre, he thinks that by building on the major part of it he will profit more. I rejoice that I have seen such foolish plans fail and the failures may encourage more enlightened planning.

I am talking to you in the language of a person seeing in this only a profit, because we cannot succeed in getting the things done that we want to see done until we can show people that profit lies in comfort and pleasure and health.

In all the small cities throughout the country our planning has produced the kinds of streets Mr. Nolen showed us last night—most of them too wide, some of them too narrow, and all ugly. It is possible so to plan our cities that there shall be streets adequate for traffic and for business, and those streets on which are the palaces of the rich and the homes of the poor shall carry only that burden of traffic necessary for those who live upon them, so protecting them that they will have quiet and safety from through traffic.

In all the smaller cities many single-family houses are

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used for tenements without adequate provisions for health and safety. This is not allowed in big cities. Building codes sometimes provide no protection against fire, and the loss of life in this type of building has been enormous. We see wooden tenements in Springfield as well as all over New England, and it is observable all along the New York, New Haven and Hartford lines. I never go to Boston without looking at the three-deckers with the stairs on the rear. It is only by the mercy of God that more are not burned.

No lives have been lost by the burning of tenement houses built in New York since 1901. That result, at least, we have accomplished, and that can be copied. We have not gone far enough for the protection of persons living in old single-family houses. When those houses were occupied by one family with two or three servants all had an interest in each other. Fires were few and not many lost their lives. When five times as many persons occupy the house, most of them not knowing each other, and a fire comes—some of them are sure to lose their lives.

As population increases we should not amend our zoning ordinances to permit any increase of congested areas so as to allow the same percentage of lot area to be covered in the new part of the city that we were obliged to allow in the old. We must restrict the congested area and hold it so that we cannot reproduce fifty years from now the slums of today in the buildings of tomorrow. We should protect our future against this. We can do it for the multiple-family house, the single house and every house. We must prove that there is more money in building healthful, comfortable homes. If we do we will set a new fashion for the next generation to follow and not carry on the obstacles to progress into the next generation that were set by our fathers.

If in planning our cities we increase our parks, and open places, have a better street plan and make the homes of the

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rich more beautiful, is that enough? Will our work be worth while? I doubt it. We will make real gains for civilization if we bring these advantages to the majority of our people who must live in second-hand houses. Let us control the future so that the second-hand houses of tomorrow shall be better than the first-hand houses of today.

THE BUFFALO CITY PLAN

C. J. HAMLIN

President, Buffalo City Planning Association

May I tell an old story you have all heard? It is about the Californian who attended a prayer meeting and who, after everyone had had his say, and when the leader called upon the congregation to know if there was anyone who had anything more to say, arose and said, "If there is nobody else who has anything to say, I will tell you about California." Just so I want to tell you about Buffalo. May I not treat you as Buffalonians, talk to you as Buffalonians, as we have talked to the Buffalonians these last few months?

There may be a little hint to you, here and there, as to how your publicity may be handled.

So far as the Buffalo plan goes, we are in a very fortunate situation. In November, 1920, a referendum was submitted to the voters of the city. It was rather a broad question. The question was as follows:

"Shall the Council of the city of Buffalo, prior to the first day of September, 1922, adopt a plan for the location and grouping of the future public buildings of the city and thereupon proceed to carry out this plan?"

We went into the pre-election campaign and very vigorously presented glittering generalities to the citizens of Buffalo and the referendum was carried. The answer to that question was mandatory upon the Mayor and the Council and if, by September 1, 1922, they haven't adopted this referendum, legal proceedings can be brought against them.

The question of this referendum was referred to the City Planning Committee appointed by the Mayor. This Committee, as a matter of fact, consisted of men who had,

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previous to this time, been at work and had collected a great amount of material. It would have been impossible to formulate these plans if they had not had this material.

The next proceeding, after referring this question to the City Planning Committee, was determining from the Council whether we were to retain an adviser. We were granted the necessary appropriation and an adviser was retained.

I want to pay a little tribute to a man in this country who has exerted a tremendous influence over our plans and that man is Charles D. Norton of New York City. It was also largely through him that the splendid Russell Sage Foundation survey of New York was instigated. He has had a finger in the Buffalo plan. He very kindly came to Buffalo and suggested to us, at a meeting of a number of leading citizens and the City Planning Committee that, in endeavoring to make plans we should not cast up one site for public buildings against another, weigh them and then pick the best, but that, for the time being, we should forget the location of the city buildings and look outside, say twenty-five or thirty miles, and try to vision the Buffalo of fifty years from now, then make our plans to correlate that area with Buffalo territory and gradually work in toward the center. He told us that, if we did this, our public buildings would locate themselves naturally. So when we started in with our adviser, we started to examine the metropolitan frontier of Buffalo. It lies between the Niagara River and Lake Erie, extending almost to Lake Ontario. This map shows the Buffalo of 1970.

Along the Niagara River there is a great deal of industry and we believe that this will stretch down to Tonawanda, through La Salle to Niagara Falls, and we visualize that, as industry comes, the growth of population attached to this industry will fill in behind this belt making practically a continuous line from Buffalo to the Falls.

There lies the Niagara River. This is Grand Island. A

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line from Buffalo to Niagara Falls passes directly across this island and the route would be shortened some eight or nine miles if it went through this island. The New York Central Railroad has already bought its right of way for the railroad line of the future on this island. We do not regret this move on the part of the Central as the hinterland of the island will become the place for homes.

We also want to pay our Canadian neighbors a tribute for what they have done for us in Buffalo. They have built a most beautiful boulevard along the river, down to the Falls, with the roadway planted in park fashion for fifteen or twenty miles. We are building a bridge across the river, connecting Buffalo with this boulevard. It will be one of the most beautiful rides in the United States.

We have another plan. We hope to be able to secure the right of way along the Whirlpool Rapids. That will be a unique addition to this wonderful scenic trip.

When we have our buildings and the rest of our plan carried out, I think that Buffalo can stand forth as one of the great convention cities of this country, with all due respect to Toronto, which, I believe, lays claim to being the greatest.

We know that every person who believes in the "City Beautiful" is with us. Those whom we must reach are those who have the dollar sense uppermost. For those we bring forth the point that we can be a great convention center, accessible both from the east and from the west. This idea interests a certain class.

There are about 700,000 people who live in what we term as our metropolitan area. I wish we wouldn't grow. We are just about big enough to know everybody and to call them by their first names, but we can't help growing. We have got to grow. We are growing about 22% every decade. This will mean a population of one million in twenty years and one and one-half million in forty years. We must plan for this.

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Growth has its compensations. We can have our opera and other things which cannot be had in smaller cities. Our circuit traffic way will carry people around the congested areas of the town. As I said before, Buffalo is laid out much like a fan. L'Enfant's influence is shown here. This is the handle of our fan and these are its ribs running down to this point. We studied the congested parts, the auto and street car problems and we wondered what would happen if we did not plan. So we planned for a great circuit boulevard so that thru traffic will be diverted to this circuit boulevard and not pass through the congested parts. We had to make something big enough so it would be used, so we planned for a boulevard 200 feet wide and with a central roadway.

We have also solved the problem of our public building's site which was the initial problem. Now we have selected a site on McKinley Square, where the McKinley Monument is, for the municipal group. We will have a vista such as Mr. Crawford spoke of last night.

But we haven't placed all our buildings here. For instance, the Music Hall is to span one end of the circuit traffic way while the Convention Hall is to span the other.

Our plan involves many more details, the extension of certain streets, reclamation of lands, particularly the lands near the railroads along the river. There are many phases to the city plan problem.

Along in the fall we were rather thrilled by the plan evolved but, if the truth be told, we were a little afraid of it. We thought "How in the world are we going to be able to put this plan across? How will we present it to the public?"

We have a commission form of government, five commissioners. Some of these men were enthusiastic, some luke-warm and some said, well, they didn't know.

Another organization came into existence. It was an association of citizens and is known as the Buffalo City

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Planning Association, Inc., and it works with the City Planning Committee in an unofficial capacity. We doubted whether the City Planning Committee could ask the people to pay money to give publicity to a plan to spend more of their money, so these citizens undertook to make public, at their own expense, our plan. We went to the Council with the suggestion that this was a big thing and that we wanted everybody in the city of Buffalo to know about it so that there might be intelligent discussion when they came to decide whether or not they would adopt the plan. They readily granted the Buffalo City Planning Association permission to conduct a publicity campaign.

The Association was interested in bringing in the best of the element in favor of the plan. We held a meeting. I remember it so well. We invited the president of the Rotary Club, the Chamber of Commerce, the Greater Buffalo Ad Club, and other clubs and some prominent citizens to this meeting and, not having a plan so beautifully drawn as here, we explained to them the plan and wondered how it would be received. We were delighted when they applauded.

After that we held many such meetings and invited small groups to see the plans before they were made public. They were complimented by the invitation and, one after another, we interested these influential groups of citizens. There was no publicity, no newspaper notices.

Finally, we were ready for publicity. We secured thirty signatures for a guarantee of \$1,000 each to finance our publicity. We could not have secured this otherwise as no one knew about it except these prominent citizens.

Next a very careful mailing list was prepared. It listed two hundred organizations in the city. We wrote them that we would like ten names to send our literature to for of course, as you know, there are about ten people in every organization who run it, and these were the people who got on our list—the people who do the talking. We

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went to the Democrats and the Republicans, and finally had about 14,000 names. We got an addressing machine so that we could address the mailing list over night.

We had a dinner for the newspapers, told them our whole plan and arranged with them a plan to release our publicity. They alternated our stories between the Sunday and daily papers, that is, between the morning and evening papers—and there was city planning all over the place.

We sent out, under a one cent stamp, our Bulletin No. 1—"Get Behind Buffalo Today." You open it and you see Buffalo of today. You open it a little further and you see Buffalo of tomorrow. This was just a preliminary statement sent to the public.

We showed, in our next Bulletin, the circuit traffic way on a map of the city of Buffalo and enumerated the organizations in favor of it.

Another publicity idea was to offer \$100 in cash for the best name for the proposed circuit traffic way and we had 1329 different names submitted with many more, counting duplicates. You know how it is. Your boy gets interested and he gets father to help him find a name, and father, in hunting for a name, gets sold on the proposition. The name finally chosen was "The Concourse"—a meeting place of peoples.

The third bulletin then disclosed the buildings and their locations, the Civic Center, the Convention Hall, the Music Hall, etc.

We had lantern slide lectures prepared, trained a corps of speakers and during four months, we addressed over 18,000 people through direct talks, such as this tonight to you Buffalonians.

The City Planning Committee next drew up a resolution fixing the whole plan and submitted it to the Council. A

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public hearing was arranged in order that the people themselves might discuss it. We sent this resolution to our mailing list as Bulletin No. 4, including the newspapers' editorial endorsement of the plan and announcement of the hearing.

A few days before the hearing we sent out our last Bulletin, showing in detail the plan for the improvement of the city. Several thousand people attended the hearing and the meeting was 99% in favor of the plan.

In concluding this sketch of Buffalo's experience I want to repeat that, although when we started out we were timid about the whole thing, as we got into the campaign, we realized more and more that it is the big thing that counts, and, if I can bring you any message, it is not to be afraid of the cards, but to make a plan for the community, one of which it will be proud, and then try to carry it out. I believe that the city plan experience of Buffalo will be duplicated every time.

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RESOLUTIONS ADOPTED BY THE CONFERENCE THE PLAN OF NEW YORK AND ITS ENVIRONS

RESOLVED, That the National Conference on City Planning recognizes in the project of a regional plan for New York and its environs a significant forward step in the American City Planning movement, and expresses to the Russell Sage Foundation its appreciation of the vision and generosity which has made this project possible.

MARIEMONT, OHIO.

RESOLVED, That the National Conference on City Planning recognizes in the project of Mariemont (near Cincinnati)—the chief characteristics of which are that it is to be an entirely new town of small size near a large city, designed specially as a workingmen's residential community, but not tributary to any single industrial plant or group of plants, and financed, with self-imposed limitation of profit, by a means of adequate private funds—a type or mode of city planning which represents a significant contribution toward the accomplishment and goal of the city planning movement, and the Conference desires to express to Mrs. Thomas Emery its appreciation of the spirit and generosity which has made this project possible.

THANKS

To His Honor, the Mayor of Springfield, to the Springfield City Planning Board, the Springfield Chamber of Commerce and to the Committee on Arrangements, of which Mr. John C. Robinson has been the energetic and gracious Chairman, and to the Ladies' Committee, the National Conference on City Planning expresses its appreciation and gratitude for the hospitality accorded this Conference, for the efficiency of the arrangements and for the interesting contributions made by Citizens of Springfield to the papers and discussions of this Conference.

ORGANIZATION OF FOURTEENTH CONFERENCE

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PLANNING CITIES

A List of Cities Which Have Shown an Interest in City Planning Either by Making City Planning Studies or by the Appointment of City Planning Boards, Including Zoning Boards.

State and City	The Plan and The Planner	The Organization
Alabama Birmingham	Report 1919 W. H. Manning	
Arizona Phoenix	Zoning in process E. H. Bennett, W. E. Parsons	Plan Commission
Arkansas Little Rock	Study—1912 John Nolen	Little Rock Park- ways Association
California Alameda	Complete Zoning Ordinance —1919 C. H. Cheney	
Berkeley	Report—1915 Werner Hegeman Partial Zoning Ordinance—1920 Cheney	Plan Commission
Coronado	Partial Zoning Ordinance—1921	
Fresno	Partial Zoning Ordinance—1921	Plan Commission
Long Beach	Partial Zoning Ordinance—1921 Cheney	Plan Commission
Los Angeles	Study—1909 C. M. Robinson Partial Zoning Ordinance—1920 and 1921	Plan Commission
Oakland	Report—1915 Werner Hegeman Partial Zoning Ordinance—1919	Plan Commission
Palo Alto	Complete Zoning Ordinance —1918	
Pasadena	Partial Zoning Ordinance—1919	
Paso Robles	Zoning in process Cheney	
Pomona	Partial Zoning Ordinance—1917	
Richmond	Report 1922, includes zoning Aronovici and Hayler	Plan Commission
Sacramento	Report 1913 John Nolen Partial Zoning Ordinance—1917	
San Diego	Report 1907 Nolen	Civic Improvement Committee

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California (Cont.)

San Francisco	Partial Zoning Regulations—1921	Plan Commission
Santa Barbara	Report 1909	
	Robinson	
	Partial Zoning Ordinance—1920	
Sierre Madre	Partial Zoning Ordinance	
South Pasadena	Partial Zoning Ordinance—1920	
Turlock	Partial Zoning Ordinance—1918	
	Cheney	

Carolina (North)

Asheville	Report 1922
	Nolen
Charlotte	Report 1917
	Nolen
Raleigh	Report 1913
	Robinson

Carolina (South)

Greenville	Report 1907	Municipal League
	Kelsey and Guild	
Columbia	Report 1905	Civic League
	Kelsey and Guild	
Spartanburg	Report 1921	
	Nolen	

Colorado

Boulder	Report 1910	City Improvement
	Federick Law Olmsted	Association
Colorado Springs	Report 1912	Department of
	Robinson	Public Works
Denver	Report 1906	Art Commission
	Robinson	
	Civic Centre Studies	
	Several Consultants	
Pueblo	Report 1916	
	I. J. McCrary	

Connecticut

Bridgeport	Report 1914	Plan Commission
	Nolen	
Bristol	Report 1920	
	Nolen	
Greenwich		Citizens Committee
Hartford	Report 1912	Plan Commission
	Carrere and Hastings	
New Britain		Plan Commission
New Haven	Report 1910	Plan Commission
	F. L. Olmsted and Cass Gilbert	
	Zoning in Process	
New London	Report 1911	Plan Commission
	Nolen	
Stamford		Citizens Committee

District of Colum-

bia	
Washington	Complete Zoning Ordinance—
	1920
	Harland Bartholomew

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Florida		
St. Petersburg	Report 1922	
	Nolen	
West Palm Beach	Report 1922	
	Nolen	
Fort Myers		Plan Board
Georgia		
Atlanta	Report in process—1922	Plan Commission
	R. H. Whitten	
	Complete Zoning Ordinance	
	—1922	
	R. H. Whitten	
Savannah	Report 1906	
	Nolen	
Illinois		
Alton	Report 1914	
	Robinson	
Chicago	Report 1909	Plan Commission
	Daniel Burnham and E. H. Bennett	
	Zoning in Process	
	E. H. Bennett	
Decatur	Report in process	Plan Commission
	American Park Builders	
Elgin	Report	
	Bennett	
Evanston	Report 1918	
	Complete Zoning Ordinance	
	—1921	
	Bartholomew	
East St. Louis	Report 1920	
	Bartholomew	
Joliet		Plan Commission
Oak Park		State Plan Commission
River Forest	Zoning Ordinance in process	
Rockford	Report 1918	Plan Commission
	American Park Builders	
Rock Island	Zoning in process	Plan Commission
	Bennett	
South Beloit	Report in process	
	American Park Builders	
Springfield	Report in process	
	American Park Builders	
Wilmette	Zoning in process	
	Bartholomew	
Winetka	Complete Zoning Ordinance	Plan Commission
	—1922	
	Bartholomew	
Indiana		
Anderson		Plan Commission
Crawfordsville		Plan Commission
Elkhart	Report 1920	Plan Commission
	Nolen	

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Indiana (Cont.)		
Evansville	Zoning in process	Plan Commission .
	Bartholomew	
Fort Wayne	Report 1910	Civic Improvement Association
Gary	Zoning in process	Plan Commission
	Bennett	
Indianapolis	Planning studies and	Plan Commission
	Zoning in process	
	Whitten	
South Bend	Planning Studies including	
	Zoning in process	
	Bartholomew	
Iowa		
Terre Haute		Plan Commission
Davenport	Partial Zoning Ordinance	
Des Moines	Planning Studies—1920	Planning Association
	Bennett	
Dubuque	Report 1907	
	Robinson	
Keokuk	Report 1912	
	Nolen	
Sioux City		Plan Commission
Kansas		
Hutchinson	Complete Zoning Ordinance	Plan Commission
	—1921	
	Bartholomew	
Kansas City	Zoning in process	Plan Commission
	G. E. Kessler	Plan Commission
Topeka	Planning and Zoning in process	Plan Commission
	Bartholomew	
Wichita	Complete Zoning Ordinance	Plan Commission
	—1922	
	Planning studies in process	
	Bartholomew	
Louisiana		
Baton Rouge		Plan Commission
New Orleans	Report in process	Association of Commerce
	C. P. Medary, Jr.	
Shreveport	Report in process	Plan Commission
	American Park Builders	
Maine		
Auburn	Report	Plan Commission
	American Park Builders	
Bangor	Planning Study 1911	Civic Improvement Committee
	W. H. Manning	
Maryland		
Baltimore	Planning Studies	Zoning Commission
	Zoning in process	
Massachusetts		
Amherst		Planning Board
Arlington		Planning Board
Attleboro		Planning Board
Bedford		Planning Board
Belmont		Planning Board
Beverly		Planning Board

CITY PLANNING CONFERENCE

Mass. (Cont.)

Boston	Planning Studies Zoning in process	Planning Board
Braintree		Planning Board
Brockton	Complete Zoning Ordinance —1921 A. C. Comey	Planning Board
Brookline	Complete Zoning Ordinance —1922	Planning Board
Cambridge	Zoning in process Comey	Planning Board
Chicopee		Planning Board
Clinton		Planning Board
Cohasset	Planning Studies 1912 Nolen	Planning Board
Dedham		Planning Board
Easthampton		Planning Board
Everett		Planning Board
Fall River	Report including Zoning—1922 A. A. Shurtleff, J. P. Fox	
Framingham		Planning Board
Gardner	Report including Zoning—1922 Kilham, Hopkins, and Greely	Planning Board
Gloucester		Planning Board
Greenfield		Planning Board
Haverhill		Planning Board
Holyoke		Planning Board
Lawrence	Planning Studies Comey	Planning Board
Leominster		Planning Board
Lexington		Planning Board
Longmeadow	Zoning in process	Planning Board
Lowell		Planning Board
Malden		Planning Board
Melrose		Planning Board
Methuen		Planning Board
Natick		Planning Board
Newburyport		Planning Board
Newton	Report including Zoning A. A. Shurtleff, J. P. Fox	Planning Board
North Adams		Planning Board
Northampton		Planning Board
Norwood		Planning Board
Plymouth		Planning Board
Quincy		Planning Board
Reading		Planning Board
Salem		Planning Board
Somerville		Planning Board
Southbridge		Planning Board
Springfield	Report including Zoning—1922 Technical Advisory Corporation	Planning Board
Stoneham		Planning Board
Taunton		Planning Board
Wakefield		Planning Board
Walpole	Report 1913 Nolen	Planning Board

CITY PLANNING CONFERENCE

Mass. (Cont.)		
Waltham		Planning Board
Watertown		Board of Survey and Planning
Wayland	Report 1911 Nolen	
Wellesley		Planning Board
Westfield		Planning Board
Weston		Planning Board
West Springfield	Zoning in process	Planning Board
Weymouth		Planning Board
Winchester	Planning Studies—1911 H. L. Kellaway Report including Zoning in process A. A. Shurtleff, J. P. Fox	Planning Board
Winthrop		Planning Board
Woburn		Planning Board
Worcester	Preliminary Report—1922 Technical Advisory Corporation	
Michigan		
Detroit	Planning Studies Several Consultants Zoning in process	Plan Commission
Flint	Report 1917 including Zoning Nolen	Plan Commission
Grand Rapids	Planning and Zoning in process Bartholomew Report Bartholomew	Plan Commission
Lansing		
Minnesota		
Duluth		Plan Commission
Minneapolis	Report 1917 Bennett	Plan Commission
St. Paul	Partial Report including Zoning Bennett, Parsons	Planning Board
Stillwater	Report 1918 Morell and Nichols	
Missouri		
Kansas City	Zoning in process	Plan Commission
St. Louis	Reports of several years Zoning 1918 Bartholomew	Plan Commission
University City	Report 1921 Bartholomew	
Nebraska		
Lincoln	*Complete Zoning Ordinance —1922	
Omaha		Plan Commission
New Jersey		
Bogota	Complete Zoning Ordinance —1921	
Caldwell	*Complete Zoning Ordinance —1921	

CITY PLANNING CONFERENCE

New Jersey (Cont.)

Camden		Plan Commission
Cranford	*Complete Zoning Ordinance —1922	
Dover	Report 1913 Coney	
East Orange	Report 1922	Plan Commission
	*Complete Zoning Ordinance —1922	
Elizabeth	*Complete Zoning Ordinance —1922	Plan Commission
Garwood	*Zoning in process	
Glen Ridge	Report 1909 Nolen	
	Complete Zoning Ordinance —1921	
	H. S. Swan	
Hillside	*Zoning in process	
Highland Park	*Zoning in process	
Hoboken	Complete Zoning Ordinance —1922	
	Swan	
Irvington	Zoning in process	
	Swan	
Jersey City	Preliminary C. P. Report E. P. Goodrich, G. B. Ford	Plan Commission
Kearny	*Complete Zoning Ordinance —1922	
Lakewood	*Zoning in process	
Linden	Complete Zoning Ordinance —1921	
Madison	Report 1909	Civic Association
	Warren H. Manning	
	*Zoning in process	
Maplewood	Partial Zoning Ordinance—1921	
	F. B. Williams, J. P. Fox	
Milburn	Complete Zoning Ordinance	
Montclair	Report 1909 Nolen	
	Complete Zoning Ordinance Swan	
Newark	Report 1913	Plan Commission
	E. P. Goodrich, G. B. Ford	
	Complete Zoning Ordinance —1920	
	Swan	
New Brunswick		Plan Commission
North Bergen	*Zoning in process	
Nutley	*Complete Zoning Ordinance —1922	Zoning Commission
Orange	*Complete Zoning Ordinance —1922	
Passaic	*Complete Zoning Ordinance —1922	Plan Commission
Paterson	Report 1921 Swan	Plan Commission

CITY PLANNING CONFERENCE

New Jersey (Cont.)

	Complete Zoning Ordinance —1921	
	Swan	
Perth Amboy		Plan Commission
Rahway	Complete Zoning Ordinance —1920	
Ridgewood	Report 1908	
	Nolen	
Roselle	*Complete Zoning Ordinance —1922	
Roselle Park	*Complete Zoning Ordinance —1921	
Rutherford	*Complete Zoning Ordinance —1922	
South Orange	*Zoning in process	Plan Commission
Summit	*Zoning in process	Zoning Commission
Trenton	Planning Studies	
Verona	Partial Zoning Ordinance—1922	
Westfield	Complete Zoning Ordinance —1921	
West Hoboken	*Complete Zoning Ordinance —1922	
West Orange	*Complete Zoning Ordinance —1921	
New Mexico		
Santa Fe	Report 1913	
New York		
Albany	Studies 1914	Zoning Commission
Binghamton	Report 1911	
Bright Waters	*Zoning in process	
Bronxville	*Zoning in process	
Buffalo	Planning Studies including Zoning	Plan Committee of City Commis- sion. Plan Association
Fayetteville	Report 1909	Park Commission
	Robinson	
Garden City, L. I.	Complete Zoning Ordinance —1921	
	E. E. Christopher	
Jamestown		Board of Park Commissioners
Mt. Vernon	*Zoning in process	
New Rochelle	Complete Zoning Ordinance —1920	Zoning Commission
New York City	Complete Zoning Ordinance —1916	
Niagara Falls	Report, including Zoning—1917	Plan Commission
	Nolen	
North Pelham	Complete Zoning Ordinance	
Ossining	Complete Zoning Ordinance	
Rochester	Studies	Planning Bureau
	Zoning for Use—1919	

CITY PLANNING CONFERENCE

New York (Cont.)

Rome		Plan Commission
Rye	Complete Zoning Ordinance	
Scarsdale	*Complete Zoning Ordinance —1922	
Schenectady	Studies 1912	
	Nolen	
Syracuse	Planning Studies Zoning Ordinance—1922	Plan Commission
	C. E. Howard	
Tarrytown	*Zoning in process	
Troy	Planning Studies in process H. S. Swan, Morris Knowles	Plan Commission
Tuckahoe	*Zoning in process	
Utica	Report 1922	Plan Commission
	Bartholomew	
White Plains	Complete Zoning Ordinance —1920	
	Swan	
Yonkers	Complete Zoning Ordinance —1920	
	Swan	

Ohio

Akron	Report 1920	Plan Commission
	Nolen	
	Complete Zoning Ordinance —1922	
Cincinnati	*Planning and Zoning in process	Plan Commission
Cleveland	Planning Studies in process Zoning in process	Plan Commission
	Whitten	
Cleveland Heights	Complete Zoning Ordinance —1921	
	Whitten	
Columbus	Report 1908	Plan Commission
Dayton		Plan Commission
E. Cleveland	Partial Zoning	Plan Commission
Hamilton	Report including Zoning—1920 Bartholomew	
Lakewood	Complete Zoning Ordinance —1919	
	Whitten	
Mansfield	*Zoning in process	
Toledo	Planning Studies including Zoning in process Bartholomew	Plan Commission
Youngstown		Plan Commission
Oklahoma		
Norman	Partial Zoning Regulations	
Oklahoma City	Zoning in process G. E. Kessler	Plan Commission
Oregon		
Portland	Report 1912 Bennett	Plan Committee
Pennsylvania		
Allentown		Plan Commission

CITY PLANNING CONFERENCE

Penn. (Cont.)

Altoona		Plan	Commission
Bethlehem		Plan	Commission
Bradford			
Chester		Plan	Committee
Du Bois		Plan	Commission
Easton		Plan	Commission
Erie	Planning Studies—1913 Nolen and others	Plan	Commission
Franklin		Plan	Commission
Harrisburg	Planning Studies Manning	Plan	Commission
Hazleton		Plan	Commission
Johnston		Plan	Commission
Lock Haven	Report 1911 Nolen		
Newcastle		Plan	Commission
Oil City		Plan	Commission
Philadelphia	Zoning in process		
Pittsburg	Planning Studies Zoning in process—1920 Bartholomew	Plan	Commission
Pittston		Plan	Commission
Pottsville		Plan	Commission
Reading	Report 1910 Nolen	Plan	Commission
Scranton		Plan	Commission
Wilkesbarre		Plan	Commission
Uniontown		Plan	Commission
York		Plan	Commission
Rhode Island			
Newport	Report Olmsted		
Providence	Studies Zoning in process Whitten	Plan	Commission
Tennessee			
Chattanooga	Planning Studies to be started soon		
Memphis	Planning and Zoning in process Bartholomew		
Texas			
Dallas	Planning and Zoning in process Whitten	Plan	Commission
El Paso	Partial Zoning		
Houston	Report Comey	Park	Commission
Sherman		Texas Town and City Planning Association	
Paris	Report 1915 W. H. Dunn	Plan	Commission
Utah			
Salt Lake City		Plan	Commission

CITY PLANNING CONFERENCE

Virginia		
Norfolk		Plan Commission
Richmond		
Roanoke	Partial Zoning Report 1907 Nolen	Committee on Civic Improvement
Washington		
Seattle	Report 1911 Vergil Bogue Zoning in process Bartholomew	
Spokane	Zoning in process Cheney	Plan Commission
Tacoma	Partial C. P. Report	Plan Commission
West Virginia		
Clarksburg		Plan Commission
Wisconsin		
Amherst	Zoning in process	
Cudahy	Zoning for use	
Green Bay	Zoning in process Report 1920 Nolen	Plan Commission
Janesville	Report 1919 Nolen	Plan Commission
La Crosse	Zoning in process Report 1919 Nolen	
Madison	Zoning in process Report 1909	Plan Commission
Milwaukee	Planning Studies Complete Zoning Ordinance —1920 Corney	
Racine	Zoning for use—1919	

*In each case the work is being done by the Technical Advisory Corporation

CITY PLANNING CONFERENCE

COST OF CITY PLANNING STUDIES

It is quite impossible to give any detailed information of value as to the cost of city planning studies because all estimates are based on the amount of work required and this does not depend on the size of the town. It is conceivable that it would take less time to prepare zoning regulations for a city of 500,000 which is of comparatively small area and intensively developed than to do the same job for a city of 100,000 which is spread over a larger territory. Again, one city may have a comprehensive plan for its parks and play grounds, for its school buildings and for other phases of the city plan and will only need a planning study which will supply deficiencies and co-ordinate all the material. It is quite possible also that an estimate for a complete planning report in a city of 100,000 might amount to \$25,000, but \$10,000 on the same job might be profitably spent. The differences would be in the amount of detail in the report. In other words, the estimate for a planning report must be based on local conditions and one of these conditions is the amount of money that can be readily made available for the purpose. It is better for a city to appropriate \$10,000 for a planning job than to wait indefinitely to get a larger appropriation for a more thorough piece of work.

PARTIAL LIST OF EDUCATIONAL INSTITUTIONS WHERE CITY PLANNING RECEIVES ATTENTION

Harvard University, University of California, University of Illinois, University of Iowa, University of Michigan, Pennsylvania State College, University of Pennsylvania, Throop College of Technology, University of Wisconsin, Ohio State University, Cornell University, Columbia University, Dartmouth College (Fall of 1922), Massachusetts Institute of Technology, Massachusetts Agricultural College.

PUBLICATIONS OF THE CONFERENCE

PROCEEDINGS

(Uniformly bound in cloth)

The contents, consisting of papers and discussions,
are not here given in full.

- ROCHESTER CONFERENCE. 1910. 182 pages \$1.50
Out of print
- PHILADELPHIA CONFERENCE. 1911. 293 pages \$1.50
Out of print.
- BOSTON CONFERENCE. 1912. 232 pages \$2.00
The meaning and progress of city planning; Paying the city
planning bills; The problem of the blighted district; The
attitude of the engineer toward city planning; Control of
municipal development by "Zoning."
- CHICAGO CONFERENCE. 1913. 273 pages \$2.00
A city planning program; A survey of the legal status of
New York City with relation to city planning; Organization
and functions of a city plan commission; Transportation and
city planning; Distribution of the cost of Kansas City parks
and boulevards.
- TORONTO CONFERENCE. 1914. 350 pages \$2.00
Water front development; Protecting residential districts;
Utility of the motor bus; Size and distribution of play-
grounds; City financing and city planning.
- DETROIT CONFERENCE. 1915. 302 pages \$2.00
Best methods of land sub-division; Constitution and powers
of a city planning authority; The engineering side of city
planning; The architectural side of city planning; Six years
of city planning activity; The city plan of Detroit.
- CLEVELAND CONFERENCE. 1916. 275 pages \$2.00
The automobile and the city plan; The financial effect of
good planning in land sub-division; State, city and town
planning; Districting by municipal regulation.

CITY PLANNING CONFERENCE

KANSAS CITY CONFERENCE. 1917. 306 pages \$2.15

Interurban passenger terminals; The industrial terminal; Street widening to meet traffic demands; Relation of traffic ways to parks and boulevards; The treatment of water courses in the city plan; City planning in small towns; A state campaign for city planning; Districting; Constitutional limitations on city planning powers.

ST. LOUIS CONFERENCE. 1918. 168 pages \$2.25

The zoning of residence sections; Industrial zoning in practice; Blighted districts in St. Louis; Industrial survey of St. Louis; War housing; Planning a war cantonment; City planning in allied countries during the war.

BUFFALO AND NIAGARA FALLS CONFERENCE. 1919. 207 pages \$2.40

Out of print

CINCINNATI CONFERENCE. 1920. 165 pages \$2.25

Out of print.

PITTSBURGH CONFERENCE. 1921. 200 pages \$2.25

City Plan and Living and Working Conditions; How zoning affects living conditions; Enforcement of a street plan; Getting action in city planning; Chamber of Commerce and city planning.

SPRINGFIELD CONFERENCE. 1922. 216 pages \$2.25

CLASSIFIED SELECTED LIST OF REFERENCES ON CITY PLANNING, 50 CENTS

This list of about 1,000 references was prepared in 1915 by Theodora Kimball, Librarian of the School of Landscape Architecture, Harvard University.

MUNICIPAL ACCOMPLISHMENTS IN CITY PLANNING AND PUBLISHED CITY PLAN REPORTS OF THE UNITED STATES; 79 PAGES, 40 CENTS

Edited by Theodora Kimball from information assembled largely by the Detroit City Planning Commission. This contains reports on accomplishments from 87 cities and gives a general summary of city planning experience and has a supplement showing municipal appropriations for city planning.

CITY PLANNING CONFERENCE

BULLETINS

- No. 1. Paying the bills for city planning, 10 cents a copy.
- No. 2. City planning legislation. (Out of print.)
- No. 3. City planning studies (nine plans submitted at the Chicago Conference for an ideal development of a 400-acre tract of land in accordance with the city planning principle, 30 cents a copy).
- No. 5. Certain aspects of municipal Financing and city planning. (Out of print.)
- No. 6. Provision for future rapid transit, 10 cents a copy.
- No. 7. Rapid transit and the auto bus, 10 cents a copy.
- No. 8. The size and distribution of playgrounds and similar recreation facilities in American cities, 10 cents a copy.
- No. 9. State, city and town planning, 25 cents a copy.
- No. 10. Constitutional limitations on city planning powers (1917), Edward M. Bassett, 20 cents a copy.
- No. 11. Engineering problems of regional planning (1919), Morris Knowles, 20 cents a copy.
- No. 12. Planning lessons from government housing operations (1919), 50 cents a copy.
- No. 13. The urban auto problem (1920), E. P. Goodrich, 10 cents a copy.
- No. 14. City planning progress reports (1920), St. Louis, Detroit, Rochester, Dallas, Texas, 20 cents a copy.
- No. 15. Principles of city planning. An introductory statement by Frederick Law Olmsted. In quantities of ten or more at 5 cents a copy.
- No. 16. Enforcing The City Plan (1921), F. B. Williams, 10 cents a copy.
- No. 17. Enforcing an official plan for streets as a police power regulation (1922), 10 cents a copy.
- No. 18. Fundamentals of Transit Planning for Cities (1922), D. L. Turner, 20 cents a copy.
- No. 19. School building program an important part of the city plan (1922), G. D. Strayer, 20 cents a copy.



